Why do Autocrats Disclose? Economic Transparency and Inter-Elite Politics in the Shadow of Mass Unrest*

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Abstract

Autocratic governments hold a preference for opacity. Autocracies are less transparent than democracies and a closed informational environment preserves autocratic regimes from popular opposition. Yet, autocracies vary widely in the extent to which they disclose economic information. In this paper, we offer an explanation for why some autocrats choose to disclose. We contend that, paradoxically, autocratic leaders may benefit from increasing the mobilizational capacity of the populace. In so-doing, autocratic leaders may threaten rival members of the elite, reducing the risk of elite challenges and increasing their freedom of maneuver. We contend that transparency acts as one mechanism toward these ends. We formalize these intuitions and demonstrate empirically that leaders in transparent autocracies suffer a reduced hazard of removal via coup relative to their opaque counterparts. Moreover, personalistic dictators and entrenched autocrats – who suffer the smallest risk of sanctioning by their regime – are particularly unlikely to disclose information.

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Why do autocratic leaders, free from electoral checks on their behavior, choose to disclose information – particularly information pertaining to economic performance – to their publics?[1] Governments, it is often argued, have a taste for opacity. An absence of information facilitates rent-seeking and increases leaders' freedom of maneuver (Adserà, Boix and Payne, 2003; Brunetti and Weder, 2003; Ferraz and Finan, 2008; Reinikka and Svensson, 2003). Moreover, disclosure entails costs in terms of finances and personnel hours. National statistical offices must be staffed, press releases and other documentation crafted, all of which costs time, money and attention. Presumably, leaders who face little pressure from the public to disclose would eschew such costs and provide little information about their actions or aggregate economic outcomes.

Transparency's role in facilitating mass mobilization under autocratic rule stacks the deck still further against disclosure. Government disclosures – particularly of economic information – help members of the populace form shared beliefs regarding their leaders' performance, easing mass mobilization against the regime. Hollyer, Rosendorff and Vreeland (2015) demonstrate that autocratic regimes that disclose large volumes of information are more likely to collapse, due to mass protest or processes leading to democratization, than regimes that fail to disclose.

Yet autocratic governments do, sometimes, disclose information to their publics. The HRV Index (Hollyer, Rosendorff and Vreeland, 2014), which measures the extent to which governments disclose credible economic information, ranks such autocratic regimes as pre-transition Korea and Mexico as more transparent than the mean democracy in their sample. While democracies, on average, disclose substantially more than autocracies, the latter vary considerably in the extent of their opacity (Hollyer, Rosendorff and Vreeland, 2011).

In this paper, we provide an explanation for why autocrats choose to disclose. We contend that, even as disclosure renders autocratic regimes more vulnerable to mass protest, it insulates autocratic leaders from opposition that emerges from *within* the regime. Indeed, transparency plays this role precisely because it facilitates mobilization by the public.

To be more precise, we construct a model in which autocratic leaders balance risks arising both from

[1] Here and throughout, we concern ourselves with the disclosure of economic information by the government to the public. We use the terms transparency and disclosure interchangeably. We elaborate on our definition and empirical operationalization of transparency in greater detail below.

rival elites and from the mass populace. Attempts by members of the elite to oust their leaders may act as a focal point for mobilization by the masses. Such mobilization is threatening to the elite, since it may result the sweeping away of many, or all, members of the incumbent regime. In acting against their own leadership, therefore, members of the elite jeopardize their own privileged positions. Leaders may thus have an incentive to facilitate collective action by the masses, insofar as this induces elite quiescence. Yet, leaders face a risk in taking such a step: the masses may mobilize against the regime even without elite intransigence. Autocratic leaders must walk a tight-rope in dealing with these competing risks.

Building from Hollyer, Rosendorff and Vreeland (2015), we argue that government disclosure may be one mechanism through which autocratic leaders facilitate mass collective action. They demonstrate, both theoretically and empirically, that increased levels of disclosure are associated with an increased risk of mass mobilization under autocratic rule – and with an increased risk of regime-collapse resulting from mass collective action.

Economic transparency facilitates collective action because of the role it plays in coordinating citizen beliefs: Even if highly convinced of the desirability of mobilizing against an autocratic regime, citizens will be unwilling to take to the streets unless they are certain these perceptions are shared. Similar forces are likely to influence citizen responses to discord within the autocratic regime: Individual citizens are better able to coordinate on engaging in protest following such infighting when they recognize that their perceptions of the incumbent regime are widely shared. This might be, for instance, because the populace generally favors a leader that may have been ousted by a rival member of the elite, and views his removal as an indication of incipient policy changes in an undesired direction.[2] Conversely, it might be because the policies of the incumbent regime are despised, and infighting is seen reflecting as a moment of regime weakness to be exploited. Regardless, any given citizen is more likely to engage in protest when she recognizes that her perceptions of the regime are widely shared by others – i.e., when the informational environment is relatively rich.

Since transparency facilitates mobilization by the masses, the elite are less likely to act against their leaders when these leaders choose to disclose. Transparency essentially acts as a tool through which leaders

[2]Throughout, we use male pronouns to refer to autocratic leaders, given that the overwhelming preponderance of such leaders have been male.

use the threat posed by the masses to cow recalcitrant rival members within the regime.

Leaders, therefore, are most likely to disclose when they perceive threats as emerging from within their ruling coalition. We can measure the level of threat to the leader from the inner-circle elites in various ways. Following Bueno de Mesquita et al. (2003, 37, 65), the threat posed by elites is likely to be falling in a leader's time in power. Analogously, following Geddes, Wright and Frantz (2012), personalistic autocrats – who rule over regimes that derive their legitimacy from the leader himself – have less to fear from elites than those autocrats who rule institutionalized regimes, with designated succession mechanisms and popular legitimacy distinct from the leader's identity. Finally, following Gandhi's (2008) approach to classifying autocracies, 'hierarchical' regimes – such as military dictatorships and monarchies – have less to fear from elites than the more 'precarious' civilian-ruled autocracies (Cheibub, Gandhi and Vreeland, 2010, 86). In all instances, we would expect disclosure to be rising in the threat posed by the elite.

We structure the paper by first developing the intuition of our argument and illustrating it with an example: the implementation of *glasnost* and socialist democratization in the USSR. We then relate our argument to the broader literature before presenting the formal game-theoretic logic. Next we turn to empirics, explaining in more detail our measures of transparency and elite-threat and finally testing the hypotheses derived from our model using these measures. We conclude that increased transparency reduces the threat of coups, and that autocracies with the highest threat-level from elites are the most likely to choose transparency.

1 Argument

Authoritarian leaders must navigate two threats to their rule. One emerges from within the regime itself. The other is the danger of mass mobilization on the part of the public. We share this framework with much of the recent literature on autocratic institutions (see particularly, Svolik, 2012). Models of autocratic rule often find these threats to be strategic substitutes – for instance, policies aimed at alleviating the threat of mass revolt may increase the risk of a coup (Svolik, 2013*b*). Here, we contend that the reverse holds: policies that increase the mobilizational capacity of the populace may force members of the regime to toe the line set by the leadership.

This contention rests on the assumption that attempts by elites to discipline their leaders tend to destabilize the regime as a whole. Attempts to unseat the leader may serve as a focal point for mobilizing mass unrest. This unrest has the potential to lead to the upending of the regime more generally.[3]

Members of the regime, when dealing with a leader who acts against their interest, face a choice of whether to remove this leader. Removing the leader, on the one hand, opens up the possibility that his replacement will prove more amenable to the elite. But, this is a costly gamble – removing the leader increases the risk of regime collapse, potentially costing these same elite individuals their privileged positions (Besley and Kudamatsu, 2007; Bueno de Mesquita et al., 2003; Gehlbach and Malesky, 2010; Padró i Miquel, 2007).

We contend that transparency alters elites' decision calculus. It does so by increasing the mobilizational capacity of the populace, boosting the probability that attempts to remove the leader cause the regime to collapse.[4] This pushes members of the elite toward inaction. As the danger of insurrection mounts, members of the elite grow more complacent in the face of an uncooperative leadership.

Transparency, under autocratic rule, tends to facilitate mass mobilization by the populace against the regime. This effect arises due to collective action problems inherent in mass protest. Protests that draw widespread participation are likely to succeed in forcing the regime to change policy or leadership, or even in bringing about regime change. Smaller protests, on the other hand, are likely to be put down, at considerable cost to participants.

Any individual's decision to protest thus depends on her beliefs about the willingness of others to similarly turn out. In this context, public information is likely to play an important role (Morris and Shin, 2002). Information that is witnessed by all citizens, and *known* by all citizens to be publicly observed, allows individuals not only to update their beliefs about the performance of government, but also their higher-order beliefs about the expectations held by others. In the absence of such information, uncertainty about the willingness of others to mobilize may render mass protest impossible, whereas, public disclosures by the government may render protest feasible. Hollyer, Rosendorff and Vreeland (2015) formalize this argument and demonstrate,

[3]Analogously, Slater (2009) contends that opposition by communal elites, who may or may not have been previously co-opted by the regime, may facilitate unrest and democratization.

[4]We say 'mobilizational capacity' here to emphasize that large numbers of citizens are not yet already in the streets. The strategic logic of elites in deciding whether to oust a leader may differ if protests have *already* begun (Casper and Tyson, 2014).

both theoretically and empirically, that transparency renders mass protest more likely under autocratic rule.[5]

Specifically, Hollyer, Rosendorff and Vreeland find – using a definition of transparency identical to that we present in our empirical sections – that transparency is associated with more frequent protests and strikes in autocratic regimes, and that the level of transparency predicts autocratic regime collapse as a result of protest or processes leading to democratization.[6] This relationship is visible in the raw data: Transparency scores in the five years leading up to democratization are, on average, $\frac{1}{3}$ of a standard deviation above the average in the full sample of autocracy-years, a difference that is highly significant. In more rigorous specifications, Hollyer, Rosendorff and Vreeland (2015) find that a one standard deviation increase in transparency is associated with an increase in the hazard of democratization of between 38 and 61 percent.

Following these findings, we contend that transparency facilitates unrest in the wake of an elite-infighting for much the same reason as argued by Hollyer, Rosendorff and Vreeland: a rich informational environment enables citizens to form shared interpretations of political events and hence form coordinated beliefs about the likelihood, and likely success, of protest.

We argue that the increased mobilizational capacity of the populace in a transparent environment boosts the risk that removing the leader – e.g., through a coup – might act as a focal point for protest (on a related point, see Casper and Tyson, 2014). Leadership struggles act as signals to the citizenry of (1) incipient policy

[5]See also Bueno de Mesquita (2010), Edmond (2013), Little, LaGatta and Tucker (2015), Shadmehr and Bernhardt (2014) and Shadmehr and Bernhardt (2014).

[6]Hollyer, Rosendorff and Vreeland (2015) demonstrate that this claim is *not* conditional on the performance or type of the autocratic government. Rather, the probability of collapse is unconditionally rising in transparency. To see why this is the case, assume citizens observe some negative information about the government. Because protest requires coordination, this information may prove insufficiently convincing to inspire mobilization – more information that confirms the original signal (i.e., more transparency) makes protest more likely. By contrast, if citizens receive positive information about the government's performance, they are unlikely to revolt – and increasing the precision of this information will not substantively change their decision. Staying at home does not require coordinated beliefs. Hence the unconditional probability of protest rises in transparency. The only instance where this is not true, is when revolution is 'easy,' such that citizens' default reaction, if uncertain over the government's type, is to protest. This last scenario is empirically implausible.

changes and (2) intra-regime conflict and weakness. Since mass mobilization entails strategic complementarities, citizens are only likely to take to the streets following a usurpation when they recognize that others share their perception of the implications of this conflict. Since transparency helps ensure that (1) these perceptions are widely shared, and (2) *known* to be widely shared, citizens are more likely to respond to elite attempts to replace the leader with protest in a transparent than an opaque environment.

Autocratic leaders determine the level of disclosure with these effects in mind. Disclosure constitutes a risky gamble for such a leader. Elites are rendered more complacent by virtue of the increased mobilizational capacity of the populace. Yet, empowering the populace in this manner is hazardous: citizens may depose the regime even as the elite toes the leadership's line. Leaders are thus placed in the position of trading off the threat they face from the populace against the threat from the elite. When the latter is high, the leader will choose to increase the popular threat to reduce that posed by the elite. By contrast, when the internal threat is low there is little incentive to disclose. Any gains in internal regime cohesion are more than offset by increases in the threat of popular mobilization.

Empirically, we test these claims following three different approaches deriving from the rich empirical literature on the logic of authoritarian survival: (1) Bueno de Mesquita et al. (2003) argue that autocratic leaders grow more entrenched the longer they survive in power. Over time, a loyalty norm develops over time amongst the elite. Hence an autocratic leader has most to fear from a rival elite member early in his reign, and this is when there is a greatest need to defuse the threat (see also, Francois, Rainer and Trebbi, 2014; Svolik, 2012). (2) Geddes, Wright and Frantz (2012) have codified autocracies according to the degree to which the leader exerts "personalistic" control over the elites. Elite members in personalistic autocracies rely on the leader much more so than "institutionalized" autocracies, where the legitimacy of the regime does not derive from the leader. We argue that personalistic leaders – as defined in by Geddes, Wright and Frantz (2012) – are less likely to disclose than their analogues in institutional autocracies. (3) Using a rather different approach to categorize autocracies, Gandhi (2008) identifies the relationship between the leader and the inner-circle elites as either "hierarchical" – as in military dictatorships and monarchies – or more "precarious" – as in civilian-ruled autocracies (Cheibub, Gandhi and Vreeland, 2010, 86).[7] Under hierarchical

[7]Note that Geddes, Wright and Frantz (2012) have military and monarchy categories, but these categories do not include military dictators or monarchs who they deem to have a personalistic following. Indeed, the

regimes, the leader enjoys established authority over the elites. Our model predicts that the leaders with more precarious control over the inner sanctum are more likely to disclose.

We do not wish to suggest that transparency is the unique – or even the most important – tool through which leaders may play the threats posed by the populace against those from the regime elite. Our formalization might be applied equally to *any* policy variable that improves the ability of citizens to mobilize in the wake of a an elite challenge to the leader. Examples might include an increased tolerance for civil society organizations, tolerance of opposition groups, steps to credibly commit to refrain from countering protests with armed repression, or even covert 'false flag' operations. Indeed, one might expect autocratic leaders to adopt many of these policies in conjunction with increased disclosure – as is indeed true of our illustrative example, Gorbachev's 'socialist democratization,' which we document below. Our contention is merely that, following existing work on protest and transparency (Hollyer, Rosendorff and Vreeland, 2015) and on the interrelated nature of mass mobilization and coups (Casper and Tyson, 2014), transparency facilitates mass protest in the wake of a coup. As such, it should be subject to the strategic forces we document, and autocratic leaders' decisions over whether or not to disclose should be driven, in part, by the threat posed by regime elites.

Similarly, we do not wish to contend that leaders' attempts to balance the competing threats from the mass public and within the regime are the only forces driving variation in levels of autocratic transparency. Autocratic leaders are also responding to other – notably economic – imperatives. For instance, information may play an important economic role, and be particularly useful in facilitating investment. Hence, autocrats may disclose information to appeal to international investors – though, their incentives to do so are likely less strong than those faced by democratic leaders (Hollyer, Rosendorff and Vreeland, 2011). Our contention is that the mechanisms we document below influence autocratic disclosure, not that these are the only such mechanisms.

1.1 *Glasnost* and *Perestroika* in the USSR: An Illustrative Example

Our theory rests on an unintuitive claim: autocratic leaders may deliberately take steps that destabilize their own regime so as to increase their control over members of their governing coalition. To give this claim greater empirical grounding, we illustrate the mechanisms of our argument with an example: Gorbachev's

personalistic category includes autocrats under all sorts of formal institutions.

implementation of the *glasnost* and *perestroika* reforms in the former Soviet Union. We discuss this case for illustrative purposes only. We do not argue that these reforms were *only* the result of the mechanisms we describe in our model, nor do we seek to present a full blown case study of the former USSR. We conduct large-N empirical tests of the propositions derived from our theory below.

Mikhail Gorbachev came to power in 1985 faced with a stagnating economy and popular ideological disaffection (Dallin, 1992; Kotz and Weir, 1997). To address these threats, Gorbachev promoted a series of economic and political reforms – labeled *perestroika*[8] – which sought to reduce the authority of the Soviet industrial ministries over state enterprises, introduce limited marketization of the economy, and decentralize authority within the ruling Communist Party (Brown, 2007; Whitefield, 1993). Coupled with these structural reforms, Gorbachev instituted a variety moves aimed at political liberalization. These policies, which were grouped under the rubric of 'socialist democracy,' would come to include multi-candidate elections and increased transparency and freedom to debate (*glasnost*) (Kotz and Weir, 1997). As Figure 1 demonstrates, these 'democratizing' reforms appear as positive jumps in transparency, as measured by the HRV Transparency Index.

Most scholars have interpreted *glasnost* and socialist democracy as, in part, an attempt to overcome resistance among Party members to the economic restructuring entailed in *perestroika*. For instance, Kotz and Weir (1997, 96) state that, "As resistance mounted to [the leadership's] program of economic and social reform, Gorbachev apparently concluded that democratization was the way to break this resistance and prevent perestroika from being stopped in its tracks," (see also Brown, 2007; Reddaway and Glinski, 2001; Whitefield, 1993). Such 'democratization' helped to ensure the compliance of Party-members through two methods. First, Gorbachev attempted to employ newly available avenues of mobilization to rally the populace to his reformist cause. Second, the creation of such avenues increased the risk that opposition groups might form within the populace and threaten continued Soviet rule. As these threats emerged, conservative Party elites were less able to take action against Gorbachev without endangering their own positions.

Scholars agree that Gorbachev's liberalizing reforms played a critical role in giving rise to a popular opposition. Aleksandr Yakovlev, Politburo member, chief of ideology and close associate of Gorbachev, remarked that in their efforts at reform, "We [the leadership] created an opposition to ourselves," (as quoted

[8]This term may be translated either as 'restructuring' or 'reconstruction'.

in Reddaway and Glinski, 2001, 122). Brown (2007, 18-19) describes *perestoika* as a reform "from above," and notes that prior to these reforms "[n]either a mass movement for reform nor (still less) a revolution was remotely in the cards." Brown (2007, 92-3) further notes that *glasnost* was a "double-edged" sword which aided reformers by publicizing the deficiencies of the Soviet state, but that greater access to information also risked increasing public discontent and mobilization against the leadership.

Nor were these risks merely incidental – the dangers posed by a popular opposition increased Gorbachev's authority within the Party. At times, it seems that Gorbachev acted to deliberately increase these threats. For instance, one of the most radical opposition voices belonged to Boris Yeltsin, who would come to play a pivotal role in the eventual collapse of the Soviet regime. Gorbachev had the opportunity to sideline Yeltsin in 1987, when Yeltsin was forced to resign as the Moscow Party secretary. Yet, Gorbachev merely reassigned Yeltsin to a somewhat less prominent position. Later, Gorbachev failed to remove Yeltsin from electoral ballots, following the introduction of multi-candidate elections in 1988. Reddaway and Glinski (2001) (and Yeltsin himself) attribute Gorbachev's actions to his desire to use Yeltsin's radicalism as a threat against conservative opponents. Similarly, Reddaway and Glinski (2001, 160) contend that Gorbachev "covertly encouraged" organizers of a rally by Democratic Russia in 1990, as a means of threatening more conservative opponents and ensuring the passage of reforms creating a Soviet presidency. As Brown (2007, 128) argued of the rise of a popular opposition,

> "...Gorbachev and the progress of perestroika now have liberal as well as conservative critics. While in some ways this makes life even tougher for the Soviet leader, on balance it is to his political advantage."

The presence of a popular opposition and, more generally, the opening of the informational environment increased the mobilizational potential of the populace. As the public became better able to mobilize, members of the Soviet elite faced a greater risk in moving against Gorbachev. Any destabilization of the leadership posed an increased risk of giving rise to popular unrest. Despite these risks, conservative members of the elite did move to depose Gorbachev through a coup in August of 1991.[9] Consistent with the mechanisms

[9]The proximate cause of the coup was the negotiation of a new union treaty giving increased independent authority to the 15 constituent republics of the USSR.

of our theory, this coup gave rise to a counter-coup led by Boris Yeltsin in his capacity as the newly created president of the Russian Republic. This counter-coup led to the ouster of the putschists and gave rise to processes leading to the collapse of the Soviet regime and the dissolution of the Union.

2 Related Literature

Our intuition that elite attempts to discipline autocratic leaders risk the continued stability of the autocratic regime, and hence officials' continued grasp their privileged positions, draws on Bueno de Mesquita et al. (2003) and Besley and Kudamatsu (2007). Padró i Miquel (2007) contends that this 'politics of fear' allows leaders to expropriate from their winning coalition.[10]

We also follow a recent literature that examines the strategic tradeoffs between popular and elite threats to autocratic leaders. For instance, Svolik (2012, 2013*b*) also explores the manner in which increased capacity to repress a popular opposition may leave leaders at risk of a coup. Bueno de Mesquita and Smith (2009) similarly stress that autocratic leaders must meet popular and elite threats, and like this paper, they consider the role of public goods that enhance the ability of the populace to coordinate. Casper and Tyson (2014) examine the relationship between protests and coups – and find feedback mechanisms between these two threats. Specifically, they find that media freedoms increase the risk that one form of threat sparks the other, in line with our primitive assumption that leadership struggles may give rise to protest, particularly in transparent environments.

Our work also contributes to a growing literature on public information under autocratic rule. The mass media has been the focus of much of this work. Accounts by Egorov, Guriev and Sonin (2009) and Lorentzen (2014) argue that autocratic regimes can effectively outsource the role of monitoring their lower level agents to the media. The benefits of such monitoring must be traded off against the risk that a free media may promote mass public opposition. King, Pan and Roberts (2013, 2014), in a series of innovative studies of the PRC's 'Great Firewall', find supportive evidence for these accounts – online censors permit criticism of local government corruption and other forms of mis-governance, but delete calls for protest. In complementary

[10] Di Lonardo and Tyson (2015) develop a related argument, in which an external threat diminishes group infighting, as applied to a terrorist group rather than an autocratic regime.

theoretical explorations of media control under autocracy, Gehlbach and Sonin (2014) and Shadmehr and Bernhardt (2015) examine autocrats' incentive to engage in media censorship, given that citizens rationally update to discount good news about the regime or interpret no news as bad news, while Guriev and Treisman (2015) examine the trade-offs dictators face between employing censorship, propaganda and the co-optation of elites.[11]

While these papers share our focus on information dissemination under autocratic rule, the conception of transparency used in these papers differs fundamentally from the approach taken here. Rather than focusing on the media, we emphasize the role of *government* disclosures of information to the public. Increasing transparency does little to enhance monitoring of lower-level public officials in our formulation, since there is no outsourcing of information collection to private organizations.

Boix and Svolik (2013) also examine the role of (a different form of) transparency under autocratic rule, and – like this paper – they conclude that higher levels of transparency are associated with a reduced risk of coup. In their model, transparency relates to the ability of members of the regime to observe efforts by autocratic leaders to amass greater authority and power. Transparency is thus, in their formulation, the clarity of the 'rules of the game.' The critical concern for Boix and Svolik (2013) is thus the information available to the elite. By contrast, our concern is with information made available to the wider public. If a given piece of information is revealed to the public, it must also be accessible to members of the regime elite – so, these two notions of transparency must be at least somewhat correlated. However, there is no reason to expect that the reverse holds – considerable amounts of information are likely circulated among autocratic elites and not disclosed to the broader public.

Our definition and – in empirical sections – our measure of transparency is derived from Hollyer, Rosendorff and Vreeland (2014), which focuses on the disclosure of economic information by the government to the broader public. We treat the findings of Hollyer, Rosendorff and Vreeland (2015), that transparency increases the risk of mass public protest under autocratic rule, as a theoretical primitive. These authors also find, in an appendix, that transparency is associated with a reduced risk of autocratic regime collapse brought on by coups, a finding which is consistent with our argument. However, our interest here is in autocratic leader removal, which may or may not entail regime collapse. Finally, unlike these other pieces, this work focuses

[11] For an excellent review of the literature on information problems in non-democracies, see Wallace (2015).

on the conditions under which autocrats disclose.

3 Model

We present a model bargaining within an autocratic elite that takes place in the shadow of mass unrest. Steps taken by regime-members to discipline their leaders threaten the stability of regime. In these assumptions, our model shares features of work by Besley and Kudamatsu (2007) and Padró i Miquel (2007). We, however, incorporate a leader's decision to pursue policies that may facilitate mass mobilization into the model. We label this term 'disclosure,' and – following Hollyer, Rosendorff and Vreeland (2015) – we interpret the choice to disclose as an increase in economic transparency. Of course, this term may also capture other policy decisions that facilitate mass mobilization – we leave such empirical extensions to future work. The regime's leaders, in order to forestall sanction by the elite, strategically choose a level of disclosure, threatening both the leader's and the rival elite's survival.

3.1 Model Primitives

Consider an interaction between an autocratic leader L, a group of regime elites R, and the mass of citizens denoted M.[12] L chooses whether to disclose $d \in \{0, 1\}$. R observes the choice of d, and must determine whether to retain him in office. We denote this decision $v \in \{0, 1\}$, where $v = 1$ denotes a decision to remove.

Following the choices of d and v, a contest for power takes place between members of the regime and the populace. If R choses to keep L in place (sets $v = 0$), the probability that the regime falls is given by $p(d)$, where $1 > p(1) > p(0) > 0$. We thus make a primitive assumption that greater disclosure causes increased mobilizational capacity. This assumption is consistent with the findings of Hollyer, Rosendorff and Vreeland (2015). If L is removed, the probability the regime falls to mass insurrection is given by $\omega p(d)$ where $\omega \in (1, \frac{1}{p(1)})$. The term ω reflects the tendency of internal strife to destabilize the regime. One can think of ω as reflecting the strength of L vis-à-vis R. To anticipate the empirical flavor of ω, following the

[12]Throughout, we use the male pronoun to refer to autocratic leaders. We ascribe female pronouns to R and M for purposes of clarity.

approach of Bueno de Mesquita et al. (2003), ω may be a function of L's time in power. During L's tenure, he entrenches himself and cultivates an R with increasing levels of dependency and loyalty (see chapter 3 in Svolik, 2012). Alternatively, one might think of ω as being higher in personalistic than institutionalized regimes (Geddes, Wright and Frantz, 2014), or as being higher in hierarchical as compared to precarious regimes (Gandhi, 2008).

Let national income (or, equivalently, the rents accruing to the regime) be y; if a leader survives in office, he derives utility from the share of national income he consumes λy. We assume that $\lambda \in (\frac{1}{2}, 1)$ which captures a divergence of interest between the leader L and the elite R – a benefit to being the leader, and a motive for the elite to desire to remove the leader. R earns the residual $(1-\lambda)y$, if the regime is not over thrown by the masses.

Of course, if mass insurrection takes down the regime, then L and R get nothing, regardless of the value of v. We allow for a further "congruence" of interest across L and R by another variable, r. One can think of r as the returns from regime cohesion. It represents the additional payoff earned by the leader and the elite in the instance that the elite chooses not to remove the leader and the regime (the leader and the elite together) survives potential mass insurrection. If both L and R survive in power together, then both get the added benefit r. If R sets $v = 1$, she looses r, and (the now-ousted) L receives a payoff normalized to 0. While the value of r is common knowledge, its value is drawn prior to the play of the game from a distribution with density G over domain $(0, \infty)$. That is, $G(0) = 0, G(\infty) = 1$ and $G'(.) > 0$

So, if $v = 0$, L has a $(1-p(d))$ chance of receiving $\lambda y(1+r)$, and a $p(d)$ chance that mass insurrection brings down the whole regime, and leaves L with 0. L also ends up with 0 if R sets $v = 1$, removing him from office.

In a complementary fashion, if $v = 0$, R has a $(1-p(d))$ chance of receiving $(1-\lambda)y(1+r)$, and a $p(d)$ chance that mass insurrection brings down the whole regime, leaving R with 0. If the elite decides to oust L (setting $v = 1$), she gets the bigger piece of the y pie – the λ share – but the ouster is costly, such that she no longer gains r. The ouster is costly in another way as well – it sends a signal to the masses. Sensing regime weakness, the masses may take to the streets and bring down the entire regime. The probability of successful mass insurrection is thus augmented by ω. So, if $v = 1$, R has only a $1-\omega p(d)$ chance of getting λy (and no r) – and she faces a $\omega p(d)$ chance that mass insurrection brings down the whole regime, leaving

R with 0.

Summarizing the expected payoffs of L and R, we have:

$$\text{Leader} \quad EU^L(d;v) = \begin{cases} (1-p(d))\lambda y(1+r) \text{ if } v=0 \\ 0 \text{ if } v=1 \end{cases}$$

$$\text{Elite} \quad EU^R(v;d) = \begin{cases} (1-p(d))(1-\lambda)y(1+r) \text{ if } v=0 \\ (1-\omega p(d))\lambda y \text{ if } v=1 \end{cases}$$

3.2 Three Preliminary Lemmas and Two Definitions

We begin by considering the elite's decision to remove the leader, conditional on having observed both the leader's action d and the realization of the variable r, capturing the benefits of loyalty. R sets $v=1$ whenever $EU^R(1;d) \geq EU^R(0;d)$.

Lemma 1 establishes that this condition is satisfied when $r < \frac{2\lambda-1-p(d)(\lambda\omega-1+\lambda)}{(1-\lambda)(1-p(d))} \equiv r(d)$ for $d=0,1$. That is, the elite removes the leader whenever the benefits to cohesion, as reflected in the random variable r, are sufficiently low.

Lemma 2 formalizes the observation that since $p(1) > p(0)$ and $\omega > 1$, it must be that $r(1) < r(0)$. The threshold necessary to ensure elite quiescence ($r(d)$) falls when the leader chooses to disclose, relative to when he chooses not to do so.

It will also be convenient to define $\tilde{\omega} \equiv \frac{2\lambda-1+p(0)(1-\lambda)}{p(0)\lambda}$. Then Lemma 3 establishes that if $\omega < \tilde{\omega}$ then $r(0) > 0$. Proofs of these Lemmas, and all theoretical propositions, are presented in Appendix A.

3.3 Equilibrium

Recall that the elite and the leader are battling over shares of national income, and whoever holds the "leadership" gets the lion's share, $\lambda > 1/2$. Under the right parameter values, the leader discloses to prevent the elite from arranging his ouster.

If the masses win in their insurrection, then they become the leader, otherwise they get zero. So, they have a dominant strategy to always rise up. Hence we don't model their decision. When the masses win, both the elite and the leader are removed.

Propositions 1 and 2 demonstrate that the subgame perfect equilibrium strategies for both R and L are conditional on the parameter ω. When ω is high – specifically $\omega > \tilde{\omega}$, the implications of infighting for regime (leader and elite) survival are sufficiently large that R will never challenge L – i.e., $v = 0,\ \forall\, r, d$. For lower values of ω, however, the elite may choose to remove the leader. They will only do so, however, if the benefits to cohesion (r) are sufficiently small. We can thus construct a Nash equilibrium to this interaction as follows:

Proposition 1. *If $\omega < \tilde{\omega}$ then the Nash Equilibrium is:*

For any $r < r(1)$, $v = 1$ and $d = 1$;

For $r > r(0)$, $v = 0$ and $d = 0$;

For $r(1) \leq r \leq r(0)$, $d = 1$ and $v = 0$.

Note that if $\omega > \tilde{\omega}$, then in equilibrium, the leader never discloses ($d = 0$) since there is no credible coup threat.

Proposition 2. *If $\omega \geq \tilde{\omega}$ then the Nash Equilibrium is $v = 0$ and $d = 0$ for all r.*

Combining the insights of the two equilibria (which span the parameter space), we reach our central finding – that disclosure is less likely as the regime grows more personalistic/hierarchical. In such regimes, the removal of the leader is particularly destabilizing, ω is high. From Proposition 1, we see that that disclosure occurs when $r \in [0, r(0)]$. Recall from the definition of $r(0)$ that this threshold is a function of ω. Our central result, Proposition 3 establishes that this disclosure region shrinks as ω rises, and since r is a random variable drawn from a distribution with a strictly monotonic density, we have:

Proposition 3. *Disclosure is less likely when ω rises.*

In Appendix B we offer a model with richer microfoundations that motivates this simple formulation of congruence or accountability between the leader and the elite. There, the primitive conflict between L and R is a matter of preferences – they are either congruent or divergent. In that model, in addition to choosing to disclose, the leader makes a policy choice. Congruent leaders share the policy preferences of the elite, divergent leaders do not. Since the leader's type is private information, we specify a perfect Bayesian equilibrium (which satisfies the intuitive criterion) to generate a unique equilibrium which has similar properties: as long as ω is not too large, there are parts of the parameter space in which disclosure is adopted (by a divergent type) to forestall elite sanctioning. Moreover in that specification, the leader chooses disclosure for larger subsets of the parameter space when ω is low, relative to when ω is high.

Both models reach two main conclusions that we can test empirically: (1) Disclosure reduces the probability of regime disunity. We will proxy for such infighting by examining instances of autocratic leader removal via coups. (2) High-ω leaders have little to fear from elites, and thus disclose less. We now turn to our empirical tests of these two results of our theory.

4 Empirical Measures

4.1 Outcome Variables

Throughout, our measure of transparency is the HRV Index (Hollyer, Rosendorff and Vreeland, 2014). We present two sets of empirical results: The first, which examines the risk autocratic leaders face of a coup, treats this index as the primary explanatory variable of theoretical interest. In the second, which examines autocrats' decision to disclose, the HRV Index is our outcome term.

This index is a continuous measure which reflects the public disclosure, by governments, of credible economic information. It is constructed by relying on the presence or absence of data from the World Bank's World Development Indicators (WDI) data series.

To be more precise, the HRV Index scales the presence/missingness of 240 variables from the WDI using an item response algorithm. Hollyer, Rosendorff and Vreeland (2014) select these 240 variables such that (1) each variable is reported by at least one country in each year covered (1980-2010), to ensure reporting carries a consistent meaning; (2) data compiled only for a subset of countries or that clearly are constructed only by the Bank with minimal input from national statistical agencies are omitted; (3) alternative transformations of the same underlying information (e.g., reporting in multiple currencies) are omitted. The item response algorithm adjusts for the fact that certain terms (e.g., population) are reported with far greater frequency than others, and weights the importance of the reporting of any one observation based on its ability to predict disclosure of other variables. Existing work demonstrates that this measure correlates with government's provision of public goods (Hollyer, Rosendorff and Vreeland, 2014), with measures of leader and regime survival in democracies (Hollyer, Rosendorff and Vreeland, 2016), and – critically for this work – with mobilization and protest in autocracies, and the collapse of autocratic regimes brought about through such mobilization (Hollyer, Rosendorff and Vreeland, 2015).

We do not assume that the public accesses information directly from the World Bank. Rather, we expect disclosure to the World Bank to correlate strongly with the disclosure of *credible* information to the domestic press and influential members of the public. These actors then relay more or less precise impressions of the state of the economy on to the broader public. Data missingness from the WDI thus acts as a proxy for the informational environment within a given autocracy more generally. The Bank's screening of data acts as a check on the credibility of the information available to the public – overt lies by the government are likely to be treated as missing data by the World Bank and to be disregarded in equilibrium by the populace.

In our initial set of regressions, the outcome of interest is the removal of an autocratic leader via a coup. We rely on Svolik's (2012) dataset on autocratic leaders, which defines both the duration of a given leader's rule and the method of his removal, to measure this term. Coups are defined as instances in which the leader is ousted either by the military or an elite faction, where the latter either applies force or uses the threat of force. Coups are the most extreme form of inter-elite struggles depicted in our theory. In relying on this measure we likely undercount instances of regime infighting – particularly in more institutionalized regimes.

In our regressions examining autocratic disclosure, Svolik's data define our unit of observation: the autocratic regime-year. They also define an explanatory term of theoretical interest: $New\ Leader \in \{0, 1\}$, which takes the value 1 if a given leader has been in power for five years or less.

4.2 Controlling for Confounds

One possible concern with our analysis lies in the likely correlation between levels of government disclosure and the level of state capacity. Governments choose whether to disclose economic information based not only on a political calculus, but also on their ability to collect and process the relevant data (Stone, 2008). Hollyer, Rosendorff and Vreeland (2014) discuss this concern in detail, and argue that economic transparency reflects *both* a state's willingness and ability to disclose. For instance, ess developed states of all regime disclose at low levels, but, as capacity rises, democracies respond by increasing transparency far more than autocracies.

Nonetheless, the correlation between transparency and state capacity may bias our results with regard to the association between economic transparency and coups. Note, however, the direction of the bias is non-obvious: While regimes with low levels of capacity may be prone to collapse generally; highly capable bureaucracies may be more prone to staging coups (Egorov and Sonin, 2011; Svolik, 2013*b*). To adjust for these potential biases, we include a control for GDP *per capita*, measured in thousands of constant 2005 US dollars, from the Penn World Table version 7.1 in all specifications. As described below, we also flexibly control for a past history of coups, which – if coups and state capacity are indeed correlated, and given the highly persistent nature of capacity – should help to adjust for confounding.

In our models that examine variation in the level of disclosure, we also include a lagged dependent variable in all specifications. Besides adjusting for dynamics in the data generating process, the inclusion of this term should help control for highly persistent confounds – such as state capacity – that might affect both past and present levels of disclosure.

We also rely on the Penn World Table version 7.1 for several additional economic controls. In all specifications, we control for the rate of growth in real GDP *per capita*, as measured in constant 2005 US dollars. In our specifications examining the risk of coup, this control helps adjust for the potentially destabilizing effects of economic recessions (Alesina et al., 1996; Haggard and Kaufman, 1995). In our specifications examining levels of disclosure, this control adjusts for the possibility that autocrats choose to publicize good news when the economy is performing well, and attempt to disguise under-performance through opacity (Wallace, forthcoming). When examining levels of disclosure, we additionally include controls for GDP, economic openness ($\frac{Exports + Imports}{GDP}$), and levels of government consumption. We also include an indicator for fuel exporters in regressions examining disclosure, given the findings of Egorov, Guriev and Sonin (2009), who find that resource-abundant dictators tend to place greater restrictions on the media.

4.3 Measuring ω: The Threat from Elites

Our theoretical model's central comparative static prediction holds that autocrats should disclose more readily when they have more to fear from their inner elite – i.e., autocrats disclose at greater levels as ω falls. Operationalizing this theoretical parameter poses challenges: To borrow a term from Pepinsky (2014*a*), ω reflects a 'logics' approach to the study of authoritarian regimes – it corresponds to a measure of the distribution of power between regime elites and dictators. This balance of power both gives rise to certain observable institutional configurations and is sustained by such configurations (on this point, see Pepinsky, 2014*b*; Svolik, 2013*a*). Moreover, the mapping from ω into empirical covariates is imprecise.

To help address these concerns, we rely on several different indicators to capture variation in ω, each of which borrows from the literature on autocratic regimes. Following the logic of Bueno de Mesquita et al. (2003), who argue that elite loyalty increases over the tenure of an autocratic leader, long-serving leaders have higher values of ω.[13] We also use the autocratic institutions data from Geddes, Wright and Frantz (2012) (henceforth GWF). The GWF definition of "personalistic" leaders maps onto our model parameter ω, with personalistic regimes corresponding to high values of ω. Finally, we approximate ω using Gandhi's (2008) categorization of autocracies. In contrast to civilian rulers, who hold precarious control over elites, leaders who enjoy a hierarchical relationship with their elites (military dictators and monarchies) correspond to high-ω regimes. We make use of the GWF and Gandhi datasets alternatively.

While this catholic approach to operationalizing ω helps to address concerns that the idiosyncrasies of any one measure produce spurious results, it does not resolve all issues that arise from adopting a logics approach to autocratic institutions. Specifically, these institutions both reflect and sustain the underlying balance of power within a given regime. We emphasize that our empirical results pertaining to autocratic institutions should not be interpreted causally – institutions may play a causal role over both leader survival and disclosure, but institutions also are affected by unobserved intra-regime dynamics that may also have a causal effect on these terms.

5 Empirical Models

5.1 Transparency and Coups

Proposition 1 forms the first basis of our empirical investigation. We empirically interpret this claim as holding that, conditional on autocratic institutions, transparency insulates leaders from coups.

Note that this is not a comparative static claim. Both disclosure and leader removal (i.e., coups) are endogenous in our model. However, it is clear from Proposition 1 that leaders disclose only to forestall the threat of removal at the hands of the elite.[14] Empirically, since leaders may be limited in their ability to boost

[13] As noted above, our empirical measure of leader tenure comes from Svolik (2012).

[14] One could trivially construct an analogous model, in which disclosure were not an option, and find that –

disclosure, or may imperfectly judge the level of disclosure necessary to forestall a coup, we expect that higher (lower) levels of transparency are associated with a reduced (enhanced) hazard of coup.

Evidence for these claims is visible in the raw data. Figure 2 plots the average frequency of successful coups among autocratic leader years in the sample, by transparency quartile. The simple bivariate relationship suggests that the risk of coup is falling in transparency – in particular coups are less frequent when transparency is above, as compared to when it is below, the sample median.

We estimate the relationship between the hazard of leader removal via coup and transparency using a series of Cox competing hazards specifications. Competing hazards models are a means of estimating the hazard (the probability that an event takes place in time t, given that it has not already taken place) of one of several mutually exclusive events. In our case, the event of interest is leader removal via coup, and the competing hazards are alternate forms of leader removal.[15] The unit of observation is the autocratic leader-year.

To adjust for the possibility that past successful coups predict future coups, we stratify the baseline hazard rate in our Cox estimates based on two measures of coup history.[16] The first is a simple indicator variable $\{0, 1\}$, equal to one if any past autocratic leader was removed via a coup. The second is an ordered variable $\{0, 1, 2, 3\}$, which – if equal to any element in $\{0, 1, 2\}$ denotes the number of past autocratic leaders removed via coup and, if equal to 3, denotes that more than two previous leaders have been removed via coup. We additionally fit models in which we simply include a control for the binary indicator of past coups. We thus fit specifications of the following form:

$$h_l(t) = h_0(t, c_l) exp(\gamma transparency_{l,t-1} + \mathbf{X_{l,t-1}}\beta) \tag{1}$$

in the interval $r(1) \leq r \leq r(0)$ – leaders no longer survive. We conduct an analogous exercise for a different variant of the model in Appendix B.

[15]See Goemans (2008) for an alternative application of the competing hazards model. This approach assumes that the hazard of one form of removal is conditionally independent of alternative forms of removal (Gordon, 2002).

[16]On this approach, see Box-Steffensmeier and Zorn (2002), who term this a 'conditional gap time' model.

where l denotes autocratic leader, t denotes time, c_l is an indicator for coup history, and $\mathbf{X_{l,t-1}}\beta$ is a vector of time-varying controls and associated coefficients. $h_0(t, c_l)$ is estimated non-parametrically within each strata, based on the fraction of observations that experience a coup at time t as compared to the number of observations at risk (leaders who have not yet been removed for *any* reason). Duration dependence is thus factored out of the likelihood function, while a history of coups may shift both the shape and level of the baseline hazard function (Beck, Katz and Tucker, 1998; Box-Steffensmeier and Zorn, 2002). Our hypothesis holds that the coefficient on transparency, γ, should be negative.

Results from the model specified in Equation 1 are presented in Tables 1 and 2. Table 1 reports results that use the GWF definitions of autocratic institutions, while Table 2 reports analogous results that employ the definition of hierarchical intra-regime relations defined by Gandhi (2008).[17] When employing the GWF controls, we include an interaction between the indicator for party-based regimes and time, to address violations of proportional hazards assumption (Box-Steffensmeier and Jones, 2004). Results in which the baseline hazard is stratified based on whether there was a previous coup are presented in the leftmost column; those stratified based on the ordered indicator of coup history are presented in the center column; and results that do not stratify the baseline hazard, but simply control for an indicator of past coups, are presented in the rightmost column.

In all specifications, the coefficient on the transparency term is negative, with 95 percent confidence intervals bounded away from zero. Point estimates indicate that a one standard deviation increase in the HRV Index is associated with a 35-40% fall in the hazard of a coup. The associated 95 percent confidence interval runs from a decline of 3% to a decline of 58% in the hazard function when the GWF controls are employed. The analogous 95% confidence interval with the DD controls runs from approximately zero to 49%.

To ease interpretation of these results, we present plots of smoothed estimates of the hazard function, using the GWF controls, in Figure 3. The solid line depicts the smoothed hazard when the HRV Index is at its 10th percentile in the sample, while the dashed line presents the same when the HRV Index is at its 90th percentile. In the former instance, the hazard that a newly seated leader is ousted via a coup during the first

[17]Note that, because the Cox model incorporates duration dependence, the Bueno de Mesquita et al. (2003) definition of ω is incorporated into both sets of results.

year of his reign is roughly 3.25 percent. When transparency is at its 90th percentile, this falls to a hazard of roughly 1.75 percent.

Figure 3 also reveals that the hazard rate declines over time, particularly over the first 20 years of a leader's rule. This is consistent with our claim that entrenched autocrats face fewer risks from within the ruling elite – a point to which we return below.

As is also consistent with theoretical mechanisms, personalistic regimes (as defined by GWF) are less likely to experience a coup than military regimes – a result that is significant at the 95% level in two of three specifications. Contrary to our expectations, party-based regimes are less likely to experience coups than military regimes, though this effect diminishes with the time a leader has served in office, and goes to zero as a leader's tenure approaches 15 years in power. We expect that this reflects the more hidden nature of regime infighting in more institutionalized regimes. In party-based regimes, regime elites can resort to mechanisms short of violence to discipline or remove the leader. Hierarchical regimes (as coded by the Gandhi data) show no significant correlation with the incidence of coups.

5.2 Autocracy and Transparency

In addition to advancing claims about the relationship between transparency and the frequency of coups, our theory offers predictions about which autocratic regimes are likely to disclose information. Proposition 3 contends that the probability of disclosure rises as ω declines. We treat this proposition as advancing an empirical claim that (1) leaders become less willing to disclose once entrenched in office - and are more willing to disclose when new to office (Bueno de Mesquita et al., 2003), (2) GWF's personalistic regimes disclose less than other autocracies, and (3) DD's hierarchical leaders disclose less than civilian-ruled autocracies.

In this section, we assess these claims through a series of varying intercepts hierarchical regression models of the HRV Index on a series of institutional and time-varying characteristics. Specifically, we estimate models of the following form:

$$\begin{aligned} transparency_{i,t} &= \rho transparency_{i,t-1} + \alpha_i + \mathbf{X_{i,t-1}}\beta + \epsilon_{i,t} \\ \alpha_i &\sim N(\mathbf{Z_i}\gamma, \sigma^2_\alpha) \end{aligned} \tag{2}$$

where i denotes a given autocratic regime, t denotes the year, $\mathbf{X_{i,t-1}}$ is a vector of time-varying controls, α_i is a regime-specific intercept term, and $\mathbf{Z_i}$ is a vector of regime-level (time-invariant) controls.[18] The unit of observation is an autocratic regime-year.

The GWF or DD regime classifications and the fuel exporter indicator constitute the time-invariant regime characteristics $\mathbf{Z_i}$, from equation 2. The $New\ Leader$ indicator and economic covariates constitute the time-varying terms $\mathbf{X_{i,t-1}}$. We additionally control for the lagged value of the HRV Index, which also varies over time.

This last term is included to capture model dynamics (Beck and Katz, 2011). Dynamics are of concern on both theoretical and empirical grounds. Empirically, transparency evolves according to a smooth (slow-moving) process – indeed, the HRV Index is constructed in a manner that includes a non-parametric inter-temporal smoother (Hollyer, Rosendorff and Vreeland, 2014). Theoretically, it is implausible to assume that, for instance, a new leader aiming to increase levels of disclosure will be able to achieve this increase within the space of a single-year. Rather, one would expect this increase to play out over a period of several years. Where such dynamics are present, excluding the lagged dependent variable would result in model misspecification.[19]

We estimate the model described in equation 2 via MCMC in JAGS 3.3.0. We place separate diffuse multivariate normal priors on, respectively, the coefficients on regime-level variables γ and the regime-year level variables β. We place an informative prior on $\rho \sim N(0, 1)$.[20] All variables that are not either binary indicators nor time counters have been standardized.

The results from models based on equation 2 are presented in Tables 3 and 4, which report specifications employing the GWF and Gandhi regime definitions, respectively.

In all specifications, the coefficient on the $New\ Leader$ indicator is positive with 95 percent credible intervals bounded away from zero in all but one instance. (In the final instance, the lower bound on this interval is given by -4$\times 10^{-4}$.) Recall further that the presence of the lagged dependent variable renders

[18]The varying intercepts model is preferred over a fixed-effects estimator given that our institutional covariates of interest are largely time-invariant.

[19]We fit variants of our model, based on an Anderson-Hsiao estimator, in Appendix C.1 and C.1.1.

[20]Further details are available in Appendix C.1.

these models dynamic. We simulate the estimated marginal effect of a new leader over time in Figure 4. Estimates are from Model 2 in Table 3, to the left, and Model 2 in Table 4 to the right.

The estimated marginal effect of a new leader is small in absolute terms. The introduction of a new leader in time $t = 0$ is anticipated to increase transparency scores by roughly 0.12 standard deviations by time $t = 5$. However, our transparency scores tend to vary little within autocratic regimes over time. This increase in transparency scores associated with a new leader is equivalent to $\frac{1}{3}$ to $\frac{1}{2}$ the average within-regime standard deviation in this term.

The coefficient on the indicator for personalist regimes is consistently negative – again in line with theoretical expectations. 95 percent credible intervals are bounded away from zero in all specifications. The estimated contemporaneous marginal effect of changing from a non-personalistic to a personalistic regime is a decline of between 0.038 and 0.044 standard deviations in the HRV Index. Given the dynamics of the model, however, the long-term equilibrium association between regime classification and transparency is considerably larger. The long-term equilibrium difference between personalistic and non-personalistic military regimes is estimated to be roughly 0.97 standard deviations.

We see similar effects when the Gandhi regime definitions are used in place of GWF. In all specifications, hierarchical regimes disclose at lower levels than non-hierachical. 95 percent credible intervals on this term are bounded away from zero when measures of other regime characteristics are excluded from the model. A change from a non-hierarchical to a hierarchical regime leads to an expected contemporaneous decline in transparency of roughly 0.04 standard deviations. Model dynamics, however, imply that – over the long term – such a change would lead to a one standard deviation decline in the level of transparency.

6 Conclusion

This paper tests an original theory of economic transparency and autocratic coups. The theory builds on the notion that autocratic leaders face twin threats – from both the populace and the elite – to their survival (Besley and Kudamatsu, 2007; Padró i Miquel, 2007; Svolik, 2012). We, however, advance a novel claim: the threat of mass-uprising can instill fear and loyalty in elites to the leader of the regime.

Leaders in transparent autocracies enjoy a reduction in the risk of coup. Across a variety of statistical specifications, an increase of one standard deviation in HRV Index scores is associated with a roughly 35%

reduction in the hazard of coup. While such leaders are more insulated from threats that emerge from within their regime, exiting results indicate that they suffer an increased risk from the masses (Hollyer, Rosendorff and Vreeland, 2015). Autocrats are thus placed in a delicate position when deciding whether or not to disclose: they must trade off the threats they face from within their regime against those from without.

We introduce a theoretical argument prefaced on such a balancing act. Transparency insulates leaders from internal threats, we argue, precisely *because* it exposes them to increased external threats. The common threat to both the leader and the autocratic elite posed by mass unrest ensures greater cohesion within the regime (Padró i Miquel, 2007; Di Lonardo and Tyson, 2015). Autocratic leaders, therefore, can manipulate this threat to ensure greater freedom of maneuver vis-à-vis their winning coalition. Transparency serves as one mechanism to gain this freedom.

This argument implies that autocrats should be most prone to disclose information when the internal balance of power tends to favor the autocratic elite over the leader. It is in these circumstances in which the leader stands to benefit most from any additional freedom of maneuver. Consistent with this argument, entrenched autocrats are, empirically, less prone to transparency than their newly installed and institutionalized counterparts.

This finding adds an important caveat to conventional accounts of informational politics under autocracy. While more information may promote mobilization by the masses against autocratic rule; high levels of transparency may also entrench autocratic leaders against schisms within the elite. The consequences of economic transparency for the stability of autocratic regimes are thus far from straightforward.

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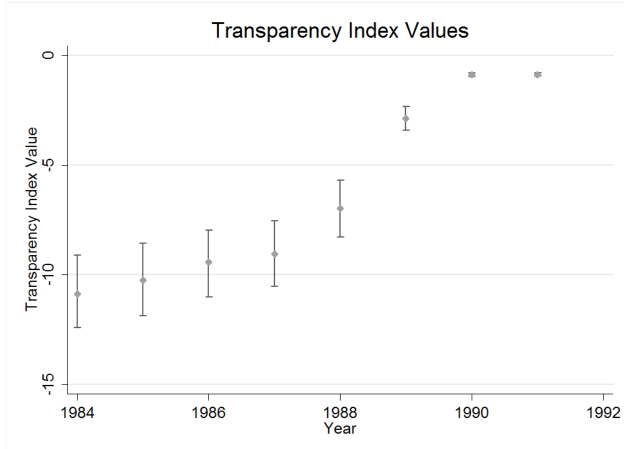
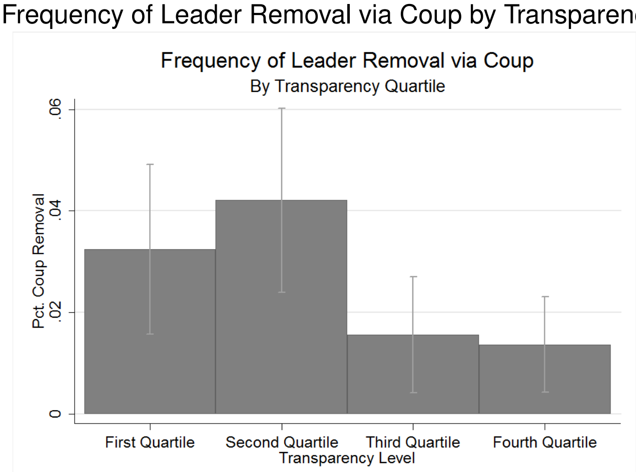
Figure 1: HRV Transparency Scores Time Series: the USSR



Mean HRV transparency index scores (Hollyer, Rosendorff and Vreeland, 2014), and 95 percent credible intervals, are plotted on the y-axis. Time, measured annually, is plotted on the x-axis. Mean scores are denoted by diamonds, credible intervals are denoted by whiskers. HRV Index values range from -10.9 to 10, in the full sample, with higher scores denoting greater disclosure.

Figure 2: Frequency of Leader Removal via Coup by Transparency Quartile



The frequency of leader removals via coup, as a function of transparency. Autocratic leader years are grouped by transparency quartile, which is plotted on the x-axis. The frequency of successful coups within each quartile is plotted on the y-axis. Whiskers denote 95 percent confidence intervals around these frequencies.

Table 1: Hazard of Leader Removal via Coup

	Past Coup Strata	Coup Experience Strata	Past Coup Control
Transparency	-0.248	-0.282	-0.240
	[-0.480,-0.016]	[-0.531,-0.033]	[-0.461,-0.019]
Growth	-0.003	-0.005	-0.000
	[-0.031,0.026]	[-0.042,0.032]	[-0.029,0.029]
GDP *per capita*	-0.110	-0.094	-0.117
	[-0.208,-0.012]	[-0.175,-0.013]	[-0.229,-0.005]
Party	-1.793	-1.709	-1.735
	[-2.595,-0.991]	[-2.451,-0.967]	[-2.661,-0.810]
Party $\times$ t	0.113	0.112	0.109
	[0.045,0.181]	[0.049,0.175]	[0.037,0.182]
Personal	-0.807	-0.676	-0.809
	[-1.609,-0.004]	[-1.437,0.084]	[-1.592,-0.025]
Ever Past Coup			-0.047
			[-0.908,0.814]
# of Subjects	89	89	89
# of Failures	36	36	36

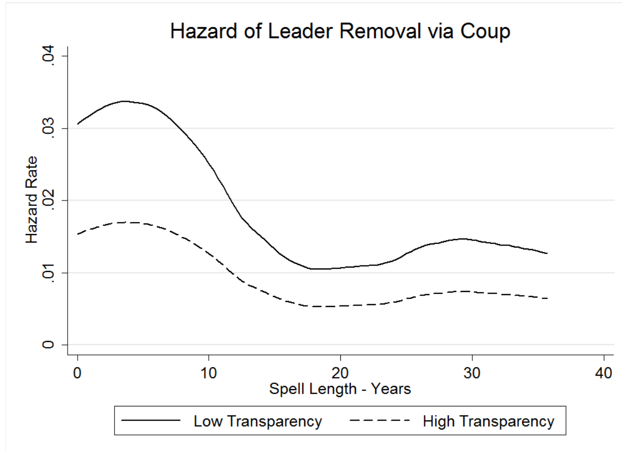
Results from Cox competing hazards regressions of leader removal via coup on transparency and controls. 95 percent confidence intervals are reported in brackets.

Table 2: Hazard of Removal via Coup (DD Controls)

	Past Coup Strata	Coup Experience Strata	Past Coup Control
Transparency	-0.202	-0.228	-0.217
	[-0.401,-0.002]	[-0.450,-0.006]	[-0.420,-0.014]
Growth	-0.008	-0.006	-0.006
	[-0.035,0.019]	[-0.040,0.028]	[-0.033,0.021]
GDP *per capita*	-0.073	-0.071	-0.078
	[-0.145,-0.001]	[-0.138,-0.004]	[-0.154,-0.002]
Hierarchical	0.410	0.280	0.430
	[-0.196,1.017]	[-0.311,0.871]	[-0.182,1.041]
Ever Past Coup			-0.126
			[-0.969,0.717]
# of Subjects	94	94	94
# of Failures	37	37	37

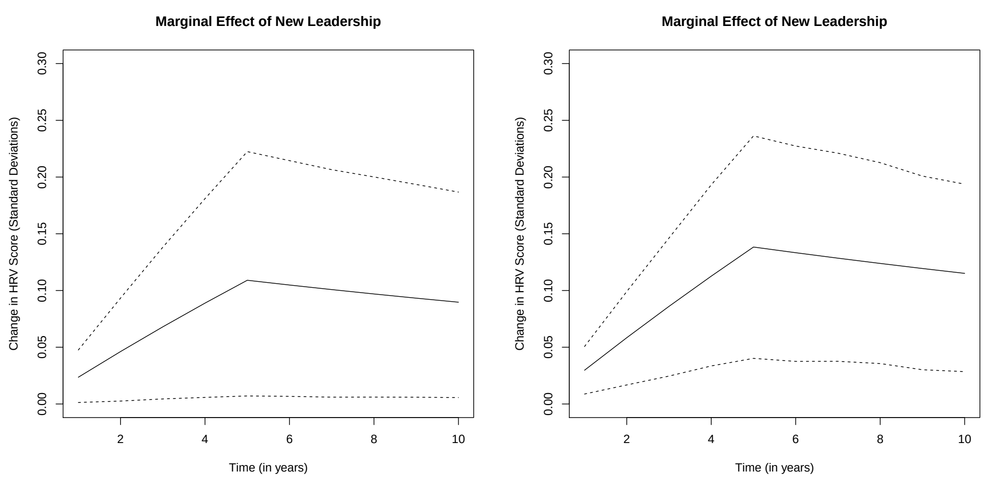
Results from Cox competing hazards regressions of leader removal via coup on transparency and controls. 95 percent confidence intervals are reported in brackets.

Figure 3: Smoothed Hazard Function of Leader Removal via Coup



Estimates of the smoothed hazard function from the model in the third column of Table 1. The solid line depicts the hazard of coup when transparency is at its 10th percentile in the sample. The dashed line depicts the corresponding hazard when transparency is at its 90th percentile. Estimated hazards are for a non-personalistic military/monarchical regime that has not previously experienced leader removal via a coup.

Figure 4: Marginal Effect of a New Leader



Estimates of the marginal effect of the introduction of a new leader in time $t = 1$ over a 10 year period. Standardized HRV transparency index scores are plotted on the y-axis. Time, measured in years, is plotted on the x-axis. Solid lines depict mean estimated marginal effects, dotted lines depict 95 percent credible intervals.

Table 3: Models of Disclosure: GWF Data

		Model 1	Model 2	Model 3
Regime Predictors	**Party**	0.002	0.002	0.002
		[-0.033, 0.038]	[-0.039, 0.031]	[-0.037, 0.036]
	Personal	-0.039	-0.038	-0.044
		[-0.083, -0.001]	[-0.085, -0.007]	[-0.087, -0.008]
	Fuel Exporter	-0.037	-0.036	-0.033
		[-0.082, 0.010]	[-0.073, 0.006]	[-0.070, 0.008]
Regime-Year Predictors	**Lag Transparency**	0.960	0.961	0.964
		[0.943, 0.978]	[0.943, 0.977]	[0.947, 0.980]
	GDP *per capita*	0.004	0.005	
		[-0.012, 0.021]	[-0.013, 0.020]	
	GDP	0.003	0.003	
		[-0.009, 0.017]	[-0.009, 0.016]	
	Ec. Openness	0.002		
		[-0.013, 0.017]		
	Growth	-4$\times 10^{-4}$		
		[-0.011, 0.010]		
	Gov't Consumption	-0.010	-0.010	
		[-0.02, 0.003]	[-0.023, 0.004]	
	New Leader	0.023	0.024	0.0248
		[-4$\times 10^{-4}$, 0.047]	[0.001, 0.048]	[0.002, 0.049]
	Cubic Time Polynomial	✓	✓	✓
	# **Obs**	1530	1530	1530
	# **Regimes**	119	119	119

Results from a hierarchical varying-intercepts linear regression of HRV transparency index scores on listed covariates. Covariates that shift the intercept term are described as 'Regime Predictors', while those that directly shift predicted transparency values are listed as 'Regime-Year Predictors.' All covariates that are neither indicators terms nor time counters have been standardized by subtracting the mean and dividing by the standard deviation. 95 percent credible intervals are presented in brackets.

Table 4: Models of Disclosure: DD Data

		Model 1	Model 2	Model 3
Regime Predictors	Single Party	-0.014		
		[-0.077, 0.047]		
	Multi-Party	0.025		
		[-0.031, 0.073]		
	Legislature	0.042		
		[-0.003, 0.084]		
	Hierarchical	-0.024	-0.036	-0.034
		[-0.061, 0.005]	[-0.064, -0.009]	[-0.062, -0.004]
	Communist	0.021		
		[-0.04, 0.08]		
	Fuel Exporter	-0.003	-0.024	-0.023
		[-0.054, 0.045]	[-0.068, 0.016]	[-0.066, 0.019]
Regime-Year Predictors	Lag Transparency	0.957	0.962	0.965
		[0.939, 0.976]	[0.947, 0.979]	[0.948, 0.98]
	GDP per capita	0.008	0.002	
		[-0.009, 0.026]	[-0.013, 0.019]	
	GDP	0	0.004	
		[-0.015, 0.014]	[-0.01, 0.017]	
	Ec. Openness	-0.012		
		[-0.027, 0.002]		
	Growth	-0.004		
		[-0.015, 0.007]		
	Gov't Consumption	-0.017	-0.017	
		[-0.029, -0.002]	[-0.031, -0.003]	
	Under IMF	-0.011	-0.009	-0.009
		[-0.038, 0.012]	[-0.033, 0.017]	[-0.034, 0.014]
	New Leader	0.032	0.03	0.03
		[0.007, 0.054]	[0.006, 0.055]	[0.007, 0.056]
	Cubic Time Polynomial	✓	✓	✓
	# Obs	1481	1481	1481
	# Regimes	131	131	131

Results from a hierarchical varying-intercepts linear regression of HRV transparency index scores on listed covariates. Covariates that shift the intercept term are described as "Regime Predictors," while those that directly shift predicted transparency values are listed as "Regime-Year Predictors." All covariates that are neither indicators terms nor time counters have been standardized by subtracting the mean and dividing by the standard deviation (95 percent credible intervals are presented in brackets).

Appendix A Proofs

Lemma 1. *In any subgame perfect equilibrium, after elite has observed action d by leader, elite R removes the leader (sets $v = 1$) iff $r \le r(d)$*

Proof.

$$\begin{aligned}
EU^R(1;d) &\ge EU^R(0;d) && \iff \\
(1-\omega p(d))\lambda y &\ge (1-p(d))(1-\lambda)y(1+r) && \iff \\
\lambda - \lambda\omega p(d) &\ge 1-\lambda-p(d)+\lambda p(d)+r(1-\lambda)(1-p(d)) && \iff \\
2\lambda - 1 - p(d)\left(\lambda\omega - 1 + \lambda\right) &\ge r(1-\lambda)(1-p(d)) && \iff \\
r &\le \frac{2\lambda - 1 - p(d)\left(\lambda\omega - 1 + \lambda\right)}{(1-\lambda)(1-p(d))} = r(d)
\end{aligned}$$

□

Definition 1. *Define $r(d) \equiv \frac{2\lambda-1-p(d)(\lambda\omega-1+\lambda)}{(1-\lambda)(1-p(d))}$ for $d = 0, 1$.*

Lemma 2. *$r(1) < r(0)$ since $p(1) > p(0)$ and $\omega > 1$.*

Proof. Straightforward □

Definition 2. *Define $\tilde{\omega} \equiv \frac{2\lambda-1+p(0)(1-\lambda)}{p(0)\lambda}$.*

Lemma 3. *If $\omega < \tilde{\omega}$ then $r(0) > 0$.*

Proof.

$$\begin{aligned}
r(0) &= \frac{2\lambda - 1 - p(0)\left(\lambda\omega - 1 + \lambda\right)}{(1-\lambda)(1-p(0))} > 0 \iff \\
\omega &< \frac{2\lambda - 1 + p(0)(1-\lambda)}{p(0)\lambda} = \tilde{\omega}
\end{aligned}$$

since $(1-\lambda)(1-p(0)) > 0$. □

Proposition 1. *If $\omega < \tilde{\omega}$ then the Nash Equilibrium to the game is:*

For any $r < r(1)$, $v = 1$ and $d = 1$;

For $r > r(0)$, $v = 0$ and $d = 0$;

For $r(1) \leq r \leq r(0)$, $d = 1$ and $v = 0$.

Proof. Recall from Lemma 2 that $r(1) < r(0)$. Lemma 3 establishes that $r(0) > 0$. However $r(1)$ may be positive or negative. If $r(1) < 0$ then there does not exist any $r > 0$ such that $r < r(1)$.

Suppose $0 < r < r(1)$. Then $r < r(d)$ for $d = 0, 1$, and by Lemma 1, $v = 1$. Then payoff for L is zero irrespective of disclosure. We set ($d = 1$) when L is indifferent.

Suppose $r > r(0)$. Then $r > r(d)$ for $d = 0, 1$, and by Lemma 1, $v = 0$. Then for L, non-disclosure ($d = 0$) dominates disclosure ($d = 1$) iff

$$
\begin{aligned}
EU^L(d = 1; v = 0) \leq EU^L(d = 0, v = 0) & \qquad \iff \\
(1 - p(1))\lambda y(1 + r) \leq (1 - p(0))\lambda y(1 + r) & \qquad \iff \\
p(1) \geq p(0) &
\end{aligned}
$$

which is true by assumption.

For $r(1) \leq r \leq r(0)$, Lemma 1 implies $v = 1$ for $d = 0$ and $v = 0$ for $d = 1$. Then for L, in equlibrium, L plays $d = 1$, and receives in equilibrium $EU^L(d = 1; v = 0) = (1 - p(1))\lambda y(1 + r)$. If instead, L played $d = 0$, then R plays $v = 1$. Then disclosure ($d = 1$) dominates non-disclosure ($d = 0$) iff

$$
\begin{aligned}
EU^L(d = 1; v = 0) \geq EU^L(d = 0, v = 1) & \qquad \iff \\
(1 - p(1))\lambda y(1 + r) \geq 0 & \qquad \iff \\
r \geq -1 &
\end{aligned}
$$

Since r is bounded below by zero, this is always true. □

Note that if $\frac{1}{p(0)} > \omega > \tilde{\omega}$, then there is no part of the parameter space in which, in equilibrium, the leader discloses with the intent to forestall a coup.

Proposition 2. *If $\omega \geq \tilde{\omega}$ then the Nash Equilibrium to the game is:*

For all r, $v = 0$ and $d = 0$.

Proof. If $\omega \geq \tilde{\omega}$ then by Lemma 3, $r(0) \leq 0$. Recall that $r \sim G$ over domain $(0, \infty)$, so $r > 0 \geq r(0)$. Then by Lemma 1, $v = 0$, and a best response to $v = 0$ is always $d = 0$. □

Proposition 3. *Disclosure is less likely when w rises.*

Proof. Following from Proposition 1, $d = 1$ when $r \in [0, r(0)]$. Then $\frac{\partial r(0)}{\partial w} = \frac{-p(0)\lambda}{(1-\lambda)(1-p(0))} < 0$, and $\frac{\partial G(r(0))}{\partial \omega} = G' \frac{\partial r(0)}{\partial \omega} < 0$. □

Appendix B The Model with Accountability Microfoundations

This version of the model builds on the theoretical framework introduced by Besley and Kudamatsu (2007), who construct a model of autocratic accountability involving both moral hazard and adverse selection.[21]

The game proceeds for two periods. In the first period, L must decide whether to disclose $d \in \{0, 1\}$, and in each period he must make a policy decision $e_t \in \{0, 1\}$, where t denotes the period of play $t \in \{1, 2\}$. Regime elites R, after witnessing the outcome of the leader's policy decision, must determine whether to retain him in office. We denote this decision $v \in \{0, 1\}$, where $v = 1$ denotes a decision to remove. Leaders may be of one of two types $\theta \in \{0, 1\}$. When $\theta = 1$, leaders are 'convergent' – they have a primitive preference for setting e_t equal to the value that maximizes the welfare of the group in power. When $\theta = 0$, leaders are 'divergent' – they have a primitive preference for setting e_t equal to a value viewed as suboptimal by the group in power. The prior probability that L is a convergent type is defined as π ($Pr(\theta = 1) = \pi$).

Following the conclusion of the first period of play, a contest for power takes place between members of the regime and the populace. If members of the regime chose to keep L in place, the probability that the regime falls is given by $p(d)$, where $1 > p(1) > p(0) > 0$. Define the effect of disclosure on mobilizational capacity as $\rho \equiv p(1) - p(0)$. If L was removed, either by members of the regime or by the victory of the populace, we assume a new leader is selected from the same distribution as described above (i.e., $Pr(\theta = 1) = \pi$). If the regime is overthrown, we assume M takes over as a new regime. We make a small change to the earlier setup: both members of the elite and leader enjoy λy if they survive in office and $\lambda \in (\frac{1}{2}, 1)$ reflects the disproportionate flow of resources to members of the regime.

[21] This approach is also closely analogous to Padró i Miquel (2007).

Members of the regime also want L to set policy equal to a state variable $s_t \in \{0, 1\}$, which is randomly determined and where $Pr(s_t = 1) = \frac{1}{2} \, \forall \, t$, and s_t is independently drawn in each period. R's utility is thus given by:

$$u_{R,t}(e_t, s_t) = \begin{cases} I_t[\Delta + \lambda y] + (1 - I_t)(1 - \lambda)y \text{ if } e_t = s_t \\ I_t \lambda y + (1 - I_t)(1 - \lambda)y \text{ otherwise} \end{cases} \tag{3}$$

where $\Delta > 0$ and $I_t \in \{0, 1\}$ is an indicator variable equal to 1 if R is in power at time t and equal to zero if M is in power. Note that R always begins the game in power, hence $I_1 = 1$, whereas I_2 is determined by the contest for power that takes place at the end of the first period of play.

Those out of power have no ability to directly sanction the autocratic leader. Hence, their preferences over the policy variable e_t are irrelevant. We treat the utilities of those out of power as independent of e_t to emphasize that accountability, in the autocratic context, means accountability to the winning coalition of the regime.[22] If $I_2 = 0$, therefore, R has been removed from power, her share of national income declines to $(1 - \lambda)y$ and she is no longer concerned about the value of the policy variable.

Members of the populace derive utility only based on their share of national income $(1 - \lambda)y$ in the first period of play. Should they come to power in the second period, they will gain in their share of national income – which will rise to λy – and they will become concerned about the leader's choice of policy. The utility of the populace is thus given by:

$$u_{M,t}(e_t, s_t) = \begin{cases} I_t(1 - \lambda)y + (1 - I_t)[\Delta + \lambda y] \text{ if } e_t = s_t \\ I_t(1 - \lambda)y + (1 - I_t)\lambda y \text{ otherwise} \end{cases} \tag{4}$$

where I_t is as defined above. Note that this implies that the 'convergence' or 'divergence' of the leader is with reference to *whichever* group is in power at time t.

L's utility depends on his type. Convergent types ($\theta = 1$) share the policy preferences of the members of those elites in power (hence 'convergent'). Divergent types ($\theta = 0$), however, have primitive preferences

[22]Our results would be substantively unchanged if those in and out of power both received this state-contingent payoff.

opposed to sitting regime members. Specifically, we assume that divergent types derive a utility of r_t from setting $e_t \neq s_t$, where r_t is a random variable drawn from a CDF $G(\cdot)$. $G(\cdot)$ has support on $\mathbb{R}_+$ such that $G(\Delta) = 0$ (i.e., $r_t \in (\Delta, \infty)$) and has expected value μ. Leaders also derive utility from the share of national income flowing to the elite. Thus, leader utility is given by:

$$u_{L,t}(e_t, s_t; \theta) = \begin{cases} \Delta + \lambda y \text{ if } e_t = s_t \text{ and in power} \\ \lambda y \text{ if } e_t \neq s_t,\ \theta = 1 \text{ and in power} \\ r_t + \lambda y \text{ if } e_t \neq s_t,\ \theta = 0 \text{ and in power} \\ 0 \text{ if out of power.} \end{cases} \tag{5}$$

The order of play is as follows:

1. $Nature$ draws the the leader's type $\theta \in \{0, 1\}$, the state variable s_1 and the value of rents r_1, which are revealed to the leader but not to any citizen.
2. The leader chooses $d \in \{0, 1\}$ and the value of e_1
3. Members of the regime observe the choice of d and the realization of the policy outcome. They choose whether to unseat the leader $v \in \{0, 1\}$.
4. A contest for power between R and M takes place. M prevails with probability $p(d)$ if the leader was previously retained and with probability $\omega p(d)$ if the leader was previously removed.
5. (a) If M prevails, it is in power in round 2 and a new leader is chosen by $Nature$. This leader is of type $\theta = 1$ with probability π.
   (b) If R prevails after ousting the leader, a new leader is chosen by $Nature$. This leader is of type $\theta = 1$ with probability π.
   (c) Otherwise, L remains in office.
6. $Nature$ chooses values of s_2 and r_2, which are revealed to the sitting leader, but not to any other player.
7. The sitting leader chooses e_2. All payoffs are realized and the game ends.

B.1 Equilibrium

We characterize a perfect Bayesian equilibrium (PBE) to this interaction (Fudenberg and Tirole, 1991). As is common in signaling games, this interaction can give rise to multiple such equilibria. We focus attention on a semi-separating PBE in pure strategies. We also restrict attention to equilibria in which L chooses $d = 1$ whenever indifferent over this choice. When we restrict attention to PBE in which L, when indifferent, chooses $d = 1$, this semi-separating equilibrium is the unique pure strategy PBE to satisfy an intuitive criterion refinement (Cho and Kreps, 1987).

A PBE in pure strategies consists of a strategy profile and a set of posterior beliefs for members of the regime. A strategy for L consists of a choice of an action pair (e_1, d) in the first period of play, where (e_1, d) is a mapping from his type θ and the realization of the value of rents r_1, $(e_1, d) : \{0, 1\} \times (\Delta, \infty) \to \{0, 1\} \times \{0, 1\}$. His strategy further consists of an action e_2 which is a mapping from his type, $e_2 : \{0, 1\} \to \{0, 1\}$. A strategy for R consists of a mapping from her posterior beliefs over L's type and the choice of disclosure d into her decision of whether to oust the leader $v : [0, 1] \times \{0, 1\} \to \{0, 1\}$. And R's posterior beliefs are updated according to Bayes' Rule and are consistent with the strategy profile.[23]

To characterize a semi-separating PBE, we first require several definitions. We first implicitly define two thresholds in ω:

Definition 3. *Define $\bar{\omega}$ and $\underline{\omega}$ such that:*

$$\pi\Delta = \frac{p(0)y(0)(\bar{\omega} - 1)(2\lambda - 1)}{1 - \bar{\omega}p(0)}$$
$$\pi\Delta = \frac{p(1)y(1)(\underline{\omega} - 1)(2\lambda - 1)}{1 - \underline{\omega}p(1)}.$$

Note that the right hand side of the equality $\pi\Delta = \frac{p(d)y(\omega-1)(2\lambda-1)}{1-\omega p(d)}$, which defines these two terms, is monotonic and increasing in ω and similarly monotonic and increasing in $p(d)$ over all admissible values of these terms. Note further that $\lim_{\omega\to 1} \frac{p(d)y(\omega-1)(2\lambda-1)}{1-\omega p(d)} = 0$, and $\lim_{\omega\to \frac{1}{p(d)}} \frac{p(d)y(\omega-1)(2\lambda-1)}{1-\omega p(d)} = \infty$. Thus, $\bar{\omega}$ and $\underline{\omega}$ are well defined. Moreover, since the expression is monotonically increasing and continuous in p, and

[23] M is non-strategic in this game, given that the interaction terminates after two periods. Even if M comes to power, members of the new regime cannot remove their sitting leader from power.

$p(1) > p(0), \bar{\omega} > \underline{\omega}$.

We further define a threshold in r_1, which we term $\bar{r}$. This threshold will be a function of the parameter ω.

Definition 4. *Define $\bar{r}(\omega)$ such that:*

$$\bar{r}(\omega) = \begin{cases} \Delta + [1 - p(0)][\mu + \lambda y] \text{ if } \omega < \underline{\omega} \\ \Delta + \rho[\mu + \lambda y] \text{ if } \omega \in [\underline{\omega}, \bar{\omega}] \\ \Delta \text{ if } \omega > \bar{\omega}. \end{cases}$$

We can now characterize the semi-separating PBE to this game in the following proposition.

Proposition 4. *A semi-separating PBE to this game consists of the following strategies and beliefs:*

1. *For L:*

$$(e_1, d) = \begin{cases} (\neg s_1, 1) \text{ if } r_1 \geq \bar{r}(\omega),\ \omega \leq \bar{\omega} \text{ and } \theta = 0 \\ (\neg s_1, 0) \text{ if } r_1 \geq \bar{r}(\omega),\ \omega > \bar{\omega} \text{ and } \theta = 0 \\ (s_1, 0) \text{ otherwise.} \end{cases}$$

$$e_2 = \begin{cases} \neg s_2 \text{ if } \theta = 0 \\ s_2 \text{ otherwise.} \end{cases}$$

2. *For R:*

$$v = \begin{cases} 0 \text{ if } \omega > \bar{\omega} \\ 0 \text{ if } \omega > \underline{\omega} \text{ and } d = 1 \\ 0 \text{ if } (e_1, d) = (s_1, 0) \\ 1 \text{ otherwise.} \end{cases}$$

3. *and R's beliefs are given (with some abuse of notation) by $Pr(\theta = 1 | e_1 = s_1, d = 0) > \pi$ and $Pr(\theta = 1 | e_1, d) = 0$ for all other realizations of (e_1, d).*

Proof. A PBE, in pure strategies, consists of (1) a strategy profile in which all actors adopt best responses given their beliefs, and (2) a set of beliefs that is weakly consistent with the strategy profile and updated according to Bayes rule, wherever possible (Fudenberg and Tirole, 1991). A semi-separating PBE in pure strategies to this game involves a first period strategy for L in which, for some range of realizations of r_1, different values of θ lead to different signals (e_1, d).

We begin via backward induction. In the final period of play, L has a dominant strategy, conditional on his type θ. $e_2 = s_2$ if $\theta = 1$ and $e_2 \neq s_2$ if $\theta = 0$.

Given this strategy for all types of L, we can now characterize R's decision over $v \in \{0, 1\}$. If L is retained, and the regime survives, R receives an expected utility of $Pr(\theta = 1|e_1, d)\Delta + \lambda y$. However, the regime only survives with probability $1 - p(d)$. With probability $p(d)$ the regime collapses, in which case R is guaranteed a utility of $(1 - \lambda)y$. Hence, the expected utility of retention is $p(d)(1 - \lambda)y + [1 - p(d)][Pr(\theta = 1|e_1, d)\Delta + \lambda y]$.

If R sets $v = 1$ and the regime survives, she receives expected utility of $\pi\Delta + \lambda y$, where π denotes the probability with which Nature chooses $\theta = 1$. However, following $v = 1$, the regime survives with probability $\omega p(d)$. Hence, the expected utility of removal is $\omega p(d)(1 - \lambda)y + [1 - \omega p(d)][\pi\Delta + \lambda y]$.

Comparing these two utilities yields expression 6 in the text. $v = 1$ iff:

$$\omega p(d)(1 - \lambda)y + [1 - \omega p(d)][\pi\Delta + \lambda y] > p(d)(1 - \lambda)y + [1 - p(d)][Pr(\theta = 1|e_1, d)\Delta + \lambda y]$$

Notice that the RHS of expression 6 is monotonic and increasing in $Pr(\theta = 1|e_1, d)$, while the LHS is invariant in this term. Therefore, if the expression fails to hold when $Pr(\theta = 1|e_1, d) = 0$, it will never hold.

Substituting $Pr(\theta = 1|e_1, d) = 0$ and rearranging yields:

$$\pi\Delta > \frac{p(d)y(\omega - 1)(2\lambda - 1)}{1 - \omega p(d)}$$

which defines the two thresholds $\bar{\omega}$ and $\underline{\omega}$ in Definition 3. If $\omega > \bar{\omega}$ this expression can never hold for any value of d, so R has a strictly dominant strategy of setting $v = 0$. If $\omega > \underline{\omega}$, the expression can never hold so long as $d = 1$. So, R must respond to $d = 1$ by setting $v = 0$.

Notice further that, given $\omega > 1$ and $\lambda > \frac{1}{2}$, the inequality in expression 6 can never hold for $Pr(\theta = 1|e_1, d) \geq \pi$. Hence, for any $Pr(\theta = 1|e_1, d) \geq \pi$, R must set $v = 0$.

Given these preliminaries, we can now consider L's strategy in the first period of play. Clearly, for $\omega > \bar{\omega}$,

L has a dominant strategy, conditional on type. For $\theta = 1$, it must be the case that $(e_1, d) = (s_1, 0)$. Analogously, for $\theta = 0$, it must be the case that $(e_1, d) = (\neg s_1, 0)$.

Consider, now, values of $\omega < \bar{\omega}$. Let L play a strategy of $(e_1, d) = (s_1, 0)$ when $\theta = 1$ – as is consistent with his primitive preference. Given this strategy when $\theta = 1$, R must hold beliefs such that $Pr(\theta = 1|e_1 = s_1, d = 0) \geq \pi$, hence sending this signal pair guarantee's $v = 0$ for all types of L.

We must now consider the strategy for L when $\theta = 0$. Let us first consider the case when $\omega \in [\underline{\omega}, \bar{\omega}]$. He can guarantee retention by adopting the action pair $(s_1, 0)$, in which case his expected utility is given by $\Delta + \lambda y + [1 - p(0)][\mu + \lambda y]$. Notice that, for $\omega \in [\underline{\omega}, \bar{\omega}]$, a divergent L may also guarantee retention by setting $d = 1$. If he does this, he also strictly prefers to follow his primitive preference over policy by setting $e_1 \neq s_1$. (Analogously, if he chooses to separate by setting $e_1 \neq s_1$, he strictly prefers to set $d = 1$ and guarantee $v = 0$ rather than $v = 1$.) By setting $(e_1, d) = (\neg s_1, 1)$, L obtains $r_1 + \lambda y + [1 - p(1)][\mu + \lambda y]$. Hence, for $\theta = 0$ and $\omega \in [\underline{\omega}, \bar{\omega}]$, L chooses $(\neg s_1, 1)$ if $r_1 > \Delta + \rho[\mu + \lambda y]$, where $\rho \equiv p(1) - p(0)$, and chooses $(s_1, 0)$ otherwise.

Let us now consider the case when $\omega < \underline{\omega}$. Here, L can guarantee retention by adopting $(s_1, 0)$, but faces certain removal for any other signal pair. His expected utility from $(s_1, 0)$ is identical to that given above. His utility from any alternative in which $e_1 \neq s_1$ is given by $r_1 + \lambda y$. (Clearly, the signal $(s_1, 1)$ is dominated.) L thus prefers to choose $e_1 \neq s_1$ if $r_1 > \Delta + [1 - p(0)][\mu + \lambda y]$, and to choose $(s_1, 0)$ otherwise. L is indifferent between $(\neg s_1, 1)$ and $(\neg s_1, 0)$. As noted above, we assume $d = 1$ whenever L is indifferent, such that L adopts the signal $(\neg s_1, 1)$ when $r_1 > \Delta + [1 - p(0)][\mu + \lambda y]$, $\theta = 0$ and $\omega < \underline{\omega}$.

We can summarize these cut-points in r_1 by $\bar{r}(\omega)$, as defined in Definition 4. Given this strategy by L, R must believe $Pr(\theta = 1|e_1 = s_1, d = 0) > \pi$ and, when $\omega > \bar{\omega}$, must believe $Pr(\theta = 1|e_1 \neq s_1, d = 0) = 0$, when $\omega < \bar{\omega}$, must believe $Pr(\theta = 1|e_1 \neq s_1, d = 1) = 0$. Other messages remain off the path of play and beliefs are unrestricted. We set these beliefs to be $Pr(\theta = 1|e_1, d) = 0$ for all off-path messages (e_1, d). Given these beliefs, R's best response is to set $v = 0$ when $(e_1, d) = (s_1, 0)$. As noted above, her best response is also to set $v = 0$ whenever $\omega > \bar{\omega}$ or $\omega \geq \underline{\omega}$ and $d = 1$. R's best response is to set $v = 1$ in all other cases. This completes the characterization of the semi-separating equilibrium. $\square$

Proof that the Semi-Separating Equilibrium Uniquely Satisfies the Intuitive Criterion. This proof consists of two requirements. First, we must demonstrate that the semi-separating equilibrium satisfies the intuitive criterion refinement. Second, we must demonstrate that no alternative pure strategy PBE, in which L discloses whenever indifferent, satisfies the intuitive criterion refinement. We take each of these steps in turn.

We begin by demonstrating that the PBE characterized by Proposition 4 satisfies the intuitive criterion refinement. There are information sets that are never hit in equilibrium, though which information sets are not hit depends on the value of the parameter ω. For $\omega > \bar{\omega}$, the messages $(s_1, 0)$ and $(\neg s_1, 0)$ are observed in equilibrium, while $(s_1, 1)$ and $(\neg s_1, 1)$ are never observed. Trivially, however, both off-path messages are equilibrium dominated for both types of L – since, when $\omega > \bar{\omega}$, both types of L have a dominant strategy. Hence, the intuitive criterion does not limit off equilibrium path beliefs, and the equilibrium survives.

For $\omega < \bar{\omega}$, the messages $(s_1, 0)$ and $(\neg s_1, 1)$ are observed in equilibrium, while the messages $(s_1, 1)$ and $(\neg s_1, 0)$ are not. The message $(s_1, 0)$ equilibrium dominates both off path messages for convergent types of L, since $(s_1, 0)$ returns the highest possible utility for L when $\theta = 1$. Given that this is the case, either the intuitive criterion (1) does not limit beliefs for these off-path messages (the off-path message is equilibrium dominated for all types of L) or (2) the intuitive criterion requires that these off-path beliefs are such that $Pr(\theta = 1|e_1, d) = 0$ (the off-path message is equilibrium dominated when $\theta = 1$, but not when $\theta = 0$). Given that we specify $Pr(\theta = 1|e_1, d) = 0$ for $(e_1, d) = \{(s_1, 0), (\neg s_1 1)\}$ in the semi-separating equilibrium, these beliefs are consistent with the intuitive criterion refinement.

We now must demonstrate that alternative pure strategy PBE, in which L discloses whenever indifferent, do not satisfy an intuitive criterion refinement. To accomplish this task, we must first characterize the alternative pure strategy PBE to this game.

First, notice that there cannot exist any PBE in which divergent types adopt a pure strategy of setting $e_1 = s_1$. No such equilibrium can exist because, for a sufficiently high realization of the rents term r_1, divergent types have a dominant strategy of setting $e_1 \neq s_1$ – i.e., they will do so regardless of R's beliefs.

Notice further that, for $\omega > \bar{\omega}$, both types of L have a dominant strategy. In any PBE, it must be the case that for $\omega > \bar{\omega}$, L chooses $(s_1, 0)$ when $\theta = 1$ and $(\neg s_1, 0)$ when $\theta = 0$. We will therefore confine our attention to equilibrium strategies when $\omega < \bar{\omega}$.

These restrictions rule out any equilibrium in which all types of L pool on the action $e_1 = s_1$ when $\omega < \bar{\omega}$. The intuitive criterion rules out any equilibrium in which, for some range of values of ω, both types of leader pool on the either the message $(\neg s_1, 1)$ or $(\neg s_1, 0)$. For any range of parameter values such that both types of L pool on $(e_1, d) \in \{(\neg s_1, 1), (\neg s_1, 0)\}$, R's posterior belief on witnessing this signal must be such that $Pr(\theta = 1|e_1, d) = \pi$, which, in turn, guarantees that her best response to this message is $v = 0$. Since either equilibrium message then satisfies L's preferences over both policy and retention when $\theta = 0$, either message will equilibrium dominate any off path message $(e_1 = s_1, d = \cdot)$ when $\theta = 0$. However, the eqiulibrium message cannot equilibrium dominate any off path message $(e_1 = s_1, d = \cdot)$ for convergent types, since $e_1 = s_1$ satisifies L's policy preference when $\theta = 1$. Thus, the intuitive criterion requires that R hold off-path beliefs $Pr(\theta = 1|e_1 = s_1, d = \cdot) = 1$. Given these off-path beliefs, convergent types prefer to deviate from the equilibrium – i.e., any such equilibrium must fail the intuitive criterion refinement.

There remains one additional scenario to consider – an alternative semi-separating PBE in which convergent types adopt the strategy of sending the message $(s_1, 1)$. Divergent types pool with this message for values of $r_1 < \bar{r}(\omega)$ when $\omega < \underline{\omega}$, and will deviate to $(\neg s_1, 1)$ otherwise, where $\bar{r}(\omega)$ is as defined in Definition 4. In this equilibrium, R's beliefs are defined such that $Pr(\theta = 1|e_1 = s_1, d = 1) > \pi$ and $Pr(\theta = 1|e_1, d) = 0$ for any other message pair. Given this, R's strategy is to set $v = 0$ if $(e_1, d) = (s_1, 1)$; $v = 0$ if $d = 1$ and $\omega > \underline{\omega}$; and $v = 1$ otherwise.

In this equilibrium, the off-path message $(s_1, 0)$ is equilibrium dominated for divergent types for all $\omega > \underline{\omega}$ and when $\omega < \underline{\omega}$ and $r_1 \geq \bar{r}(\omega)$. This off-path message is not, however, equilibrium dominated for convergent types. Hence, R's beliefs on witnessing $(s_1, 0)$ must be such that $Pr(\theta = 1|s_1, 0) > \pi$ – and R must respond to these belief by setting $v = 0$ on witnessing $(s_1, 0)$. However, if R adopts this strategy, convergent types of L strictly prefer to deviate from the equilibrium, and send the message $(s_1, 0)$. The equilibrium does not survive an intuitive criterion refinement.

We have thus considered all alternative pure strategy PBE, in which L discloses where indifferent, to the game. The semi-separating equilibrium characterized by Proposition 4 survives the intuitive criterion refinement. Alternative pure strategy PBE do not. Hence, the equilibrium characterized by Proposition 4 is the unique pure strategy PBE to satisfy the intuitive criterion. □

B.2 Intuitions

In the final period of play, the sitting L sets his policy decision e_2 according to type. That is $e_2 = s_2$ if $\theta = 1$ and $e_2 \neq s_2$ if $\theta = 0$. This is a dominant strategy.

Given this strategy by the leader, R must make her decision regarding retention weighing her expectations about L's future policy choice and the consequences of removal for regime survival. R can update her beliefs based on the leader's previous decisions over policy and disclosure (e_1, d), and we denote these beliefs, with some abuse of notation, as $Pr(\theta = 1|e_1, d)$. Thus, R can expect policy returns of $Pr(\theta = 1|e_1, d)\Delta$ from retaining the leader, and returns of $\pi\Delta$ from replacing the leader with an alternative. Removal, however, also has consequences for regime survival. If the leader is retained, the regime is removed with probability $p(d)$ – if he is removed, the regime is ousted with probability $\omega p(d)$. Weighing these various concerns, we can state that R sets $v = 1$ iff:

$$\omega p(d)(1-\lambda)y + [1-\omega p(d)][\pi\Delta + \lambda y] > p(d)(1-\lambda)y + [1-p(d)][Pr(\theta = 1|e_1, d)\Delta + \lambda y]. \tag{6}$$

Because of the adverse consequences of leader removal for the survival of the regime, circumstances can arise under which R chooses to retain their leader even if certain that the leader is a divergent type. That is, $v = 0$ even if $Pr(\theta = 1|e_1, d) = 0$. The risks incurred by removing the leader simply aren't worth the expected benefits ($\pi\Delta$) from securing a more desirable dictator. Substituting $Pr(\theta = 1|e_1, d) = 0$ into expression 6 and simplifying yields the values of $\bar{\omega}$ and $\underline{\omega}$ as defined in Definition 3.

So, for $\omega > \bar{\omega}$, regardless of the actions of L in the first period, regime elites choose $v = 0$. The risks of removing the leader simply aren't worth any possible policy gains that might be derived from doing so. We refer to autocracies with values of $\omega > \bar{\omega}$ as either *personalistic* or *entrenched*.

For $\omega \in [\underline{\omega}, \bar{\omega}]$, leaders can guarantee their retention if they disclose, but are not offered any such guarantee otherwise. Because disclosure heightens the risk of public mobilization, it also renders ousting the leader more risky. Elites are thus less willing to remove when $d = 1$ than when $d = 0$.

We can now consider L's decision over policy and disclosure (e_1, d) in the first period of play. When $\omega > \bar{\omega}$, L can make this decision free of any consideration of the regime's response. Each type of L thus acts on his primitive preference – $e_1 = s_1$ if $\theta = 1$ and not otherwise. Similarly, the leader can act on his primitive preference over disclosure, which is always not to disclose ($d = 0$). In the model, disclosure acts only to increase the mobilizational capacity of the populace. For leaders who are already secure from elite accountability, disclosure offers only a cost with no benefit.

In a semi-separating equilibrium, a convergent type of leader also acts on his primitive preferences –

setting $e_1 = s_1$ and $d = 0$ – for all values of $\omega < \bar{\omega}$. So long as elites correctly interpret this behavior as a positive signal of L's type, this maximizes a convergent leader's utility. The question, then, is whether a divergent type would choose to pool with convergent and set $e_1 = s_1$ and $d = 0$, or choose to separate. A divergent leader will base this decision on the realization of the rents he receives from deviating from the preferences of the elite, i.e., r_1.

Recall that a divergent type earns rents r_1 from setting $e_1 \neq s_1$, where r_1 is a random variable and $r_1 > \Delta$. Hence, divergent types always have some incentive to separate from convergent, and – for a sufficiently high realization of r_1 – this will be a dominant strategy. Since convergent types set $(e_1, d) = (s_1, 0)$, whereas divergent types may choose not to do so, $Pr(\theta = 1|e_1 = s_1, d = 0) > \pi$. Substituting these beliefs into expression 6 reveals that R always strictly prefers to retain given the action pair $(s_1, 0)$. A divergent type thus knows he will be retained with certainty by mimicking convergent types.

The value of rents necessary to induce a divergent type to separate is given by $\bar{r}(\omega)$. For $r_1 > \bar{r}(\omega)$, the leader's policy gains from defying his winning coalition outweigh the benefits from certain retention by the elite. When a divergent leader chooses to so defy his elite, he also chooses to disclose. This is because, for $\omega \in [\underline{\omega}, \bar{\omega}]$ disclosure guarantees the elite's quiescence. The leader is able to free himself from elite accountability via disclosure. For $\omega < \underline{\omega}$, disclosure does not insulate the leader from regime backlash. But, since the leader anticipates that the elite will mobilize for his removal, the consequences of disclosure will only be felt by his successor. The leader is indifferent between disclosing and not, and – in an act of schadenfreude – punishes his winning coalition for their disloyalty.

Combining these strategies and beliefs, we are left with PBE characterized by Proposition 4. Convergent types always act according to their primitive preferences over both policy and disclosure, which are also the preferences of the elite. Divergent types only act according to their primitive preferences over both disclosure and policy if they are personalistic and entrenched. If not, they may choose to act on their preference over policy if the rents from doing so are sufficiently high. However, if they so separate themselves from convergent types, they must also choose to disclose. Members of the elite, responding to these equilibrium strategies, oust the leader when $(e_1, d) \neq (s_1, 0)$ and $\omega < \underline{\omega}$, and choose to retain otherwise.

B.3 Comparative Statics

We advance two empirical claims based on our theory: The first pertains to leader removal – leaders who disclose more readily should be at a reduced threat of removal via coup. The second examines the circumstances under which autocratic leaders choose to disclose – we should witness less disclosure when autocratic institutions are personalistic and when the leadership is long entrenched, and greater disclosure when the regime is institutionalized (not personalistic) and the leadership is new to office.

Our claims regarding the insulating effects of disclosure, however, cannot be examined via a conventional comparative static. The decision to disclose is endogenous, and hence cannot be manipulated like an exogenous parameter. This is true despite the fact that, in a partial equilibrium analysis, it is clear that R's decision over removal is influenced by disclosure, such that she is less likely to set $v = 1$ when $d = 1$.

We instead, therefore, compare the equilibrium defined in Proposition 4 to an analogous semi-separating equilibrium in a game isomorphic to that above, save only that L does not possess the option to disclose. Practically, autocrats face a number of obstacles to increasing disclosure, particularly within a short time-frame. The disclosure of economic information requires non-trivial amounts of bureaucratic expertise, which must be amassed over time, in addition to large-scale data collection efforts. In short, we might imagine that autocratic leaders vary in their capacity to disclose – or to increase levels of disclosure (for an extensive discussion of the relationship between capacity and transparency, see Hollyer, Rosendorff and Vreeland, 2014). In the following proposition, we demonstrate that, when autocratic leaders possess a greater capacity to disclose – and hence disclose more frequently – they survive for a grater range of parameter values than would be the case where they cannot disclose.

Proposition 5. *In a semi-separating equilibrium to a model without disclosure, when* $\omega \in [\underline{\omega}, \bar{\omega}]$ *and* $r_1 > \Delta + [1 - p(0)][\mu + \lambda y]$, *divergent types of* L *are removed by the elite with certainty. For the same set of parameter values, in a semi-separating equilibrium where disclosure is possible, divergent types of* L *are retained with certainty and choose* $d = 1$.

Proof. To complete this proof, we first must construct an analogous semi-separating equilibrium to that specified in Proposition 4 to a game isomorphic to that above, save that disclosure is not an option. That is, the game is identical, except that d is fixed and equal to zero.

As in the original game, L has a dominant strategy of playing according to type in the final period of play. Given this, R's retention decision is identical to the original model, and her best response is given by expression 6. As in the original game, we can therefore characterize a value of $\bar{\omega}$ to the alternative game, and this value is given by Definition 3. There is no analogue to the value $\underline{\omega}$, however.

We can now consider L's strategy regarding his policy decision in the firs period of play e_1. This is now his only message. Clearly, if $\omega > \bar{\omega}$, because R has a dominant strategy of setting $v = 0$, L also has a dominant strategy of playing according to type – i.e., $e_1 = s_1$ if $\theta = 1$ and $e_1 \neq s_1$ if $\theta = 0$.

As in the original semi-separating equilibrium, we consider an equilibrium in which, when L is a convergent type, $e_1 = s_1$ when $\omega < \bar{\omega}$ as well. Given that this pure strategy by convergent types of L, R's belief on witnessing $e_1 = s_1$ must be such that $Pr(\theta = 1|e_1 = s_1) \geq \pi$ – in which case R's best response is to set $v = 0$.

Divergent types of L thus have a choice of whether to pool with convergent types when $\omega < \bar{\omega}$ – and enjoy guaranteed retention – or to separate and gain rents at the expense of removal. A divergent type gains expected utility $\Delta + \lambda y + [1 - p(0)][\mu + \lambda y]$ from setting $e_1 = s_1$. He gains expected utility $r_1 + \lambda y$ from setting $e_1 \neq s_1$. Hence, divergent types will set $e_1 \neq s_1$ if $r_1 > \Delta + [1 - p(0)][\mu + \lambda y]$ and will set $e_1 = s_1$ otherwise.

We can now characterize a semi-separating equilibrium to the alternative game:

1. For L:

$$e_1 = \begin{cases} \neg s_1 \text{ if } \theta = 0 \text{ and } \omega > \bar{\omega} \\ \neg s_1 \text{ if } \theta = 0 \text{ and } r_1 > \Delta + [1 - p(0)][\mu + \lambda y] \text{ and } \omega < \bar{\omega} \\ s_1 \text{ otherwise.} \end{cases} \quad e_2 = \begin{cases} \neg s_1 \text{ if } \theta = 0 \\ s_1 \text{ otherwise.} \end{cases}$$

2. For R:

$$v = \begin{cases} 0 \text{ if } \omega > \bar{\omega} \\ 0 \text{ if } e_1 = s_1 \\ 1 \text{ otherwise.} \end{cases}$$

3. and R's beiefs are given by $Pr(\theta = 1|e_1 \neq s_1) = 0$ and $Pr(\theta = 1|e_1 = s_1) > \pi$

Comparing these two equilibria, it is apparent that, in the alternative model, for $\omega < \bar{\omega}$, any decision to set $e_1 \neq s_1$ results in removal. This is not true in the original model, where the message $(\neg s_1, 1)$ results in retention for $\omega \in [\underline{\omega}, \bar{\omega}]$. In the alternative model, divergent types choose to set $e_1 \neq s_1$ when $\omega < \bar{\omega}$ iff $r_1 > \Delta + [1 - p(0)][\mu + \lambda y]$. In the original model, divergent types choose to send the message $(\neg s_1, 1)$ for $\omega \in [\underline{\omega}, \bar{\omega}]$ for $r_1 > \Delta + \rho[\mu + \lambda y]$ where $1 - p(0) > \rho$.

Hence, we can say, that in the alternative model, leaders are removed for $\omega \in [\underline{\omega}, \bar{\omega}]$ when $r_1 > \Delta + [1 - p(0)][\mu + \lambda y]$; whereas, in the original model, such leaders would choose to disclose and would be retained. □

Empirically, we interpret Proposition 5 as indicating that – conditional on institutional covariates – disclosure should be associated with a reduced risk of leader removal via coup. For this range of parameter values, leaders who are able to disclose survive – and their survival results directly from their disclosure decision. The increased risk of popular mobilization cows the elite.

Proposition 6. *L chooses $d = 1$ for a wider range of realizations of r_1 and θ when $\omega \leq \bar{\omega}$ than when $\omega > \bar{\omega}$.*

Proof. This proposition follows trivially from the equilibrium definition in Proposition 4. □

Proposition 6 tells us which autocrats should be most prone to disclose. Disclosure should be greater when $\omega \leq \bar{\omega}$ – i.e., when the leader is neither personalistic nor entrenched – than otherwise. ω here represents the balance of power within the regime – specifically the risk leader removal poses for regime survival. This risk is affected by political institutions – where these are more strongly codified ω shrinks and disclosure is more likely – and by the leader's time in office – $\omega \leq \bar{\omega}$ when a leader is newly installed in office.

Appendix C Empirical Appendix

C.1 Anderson-Hsiao Estimates: GWF Controls

We assess the relationship between transparency, autocratic institutionalization (as measured by the GWF indicators for autocratic regime type), and the presence of a new leader through two sets of regressions. The first of these, based on the model described in Equation 2, consist of Bayesian hierarchical regressions of transparency on covariates. The unit of observation is the regime-year, and we estimate a varying intercepts model, in which each regime receives its own intercept, which is a function of time-invariant covariates. We estimate this model using an MCMC estimator run in JAGS 3.3.0. We run two chains of 20,000 iterations each, with the first 10,000 iterations used as a burn-in period. Gelman-Rubin diagnostics on all model parameters – including regime specific intercepts – indicate that the MCMC estimator has converged.

While the lagged dependent variable is necessary to incorporate dynamics into the model, its presence, when coupled with regime-specific random effects, raises a potential problem with this specification. Much as with fixed-effects estimators, the presence of variable intercepts induces a correlation between the lagged dependent variable and the error process, resulting in bias. This bias is inversely proportional to the number of time periods observed (Wawro, 2002). While our dataset covers a relatively long period, autocratic regimes are highly heterogeneous in the time over which they survive, and thus over which they are observed. On average, autocratic regimes are observed for 19 years in our dataset.

To correct for this bias, we employ the following procedure: We obtain unbiased estimates of time-varying coefficients (including ρ, the coefficient on the lagged dependent variable) through the use of the Anderson-Hsiao estimator. That is, we first remove unit specific effects by first-differencing equation 2. We then estimate the model in first-differences, instrumenting for the lagged dependent variable by using the twice-lagged level of transparency (i.e., $transaprency_{i,t-2}$), which is independent of the first-differenced error process. We then reestimate equation 2, constraining all coefficients on time-varying variables (ρ and β) to equal the estimates from the (unbiased) first-differenced model. This process then provides our estimates on regime-level parameters γ.[24] We thus estimate a series of equations of the following form:

$$\Delta transparency_{i,t-1} = \mu + \zeta transparency_{i,t-2} + \mathbf{\Delta X_{i,t-1}}\psi + \nu_{i,t-1} \tag{7}$$

$$\Delta transparency_{i,t} = \hat{\rho}\Delta trans\hat{p}arency_{i,t-1} + \mathbf{\Delta X_{i,t-1}}\hat{\beta} + \eta_{i,t} \tag{8}$$

$$transparency_{i,t} = \alpha_i + \hat{\rho} transparency_{i,t-1} + \mathbf{X_{i,t-1}}\hat{\beta} + \epsilon_{i,t} \tag{9}$$

$$\alpha_i \sim N(\mathbf{Z}\gamma, \sigma_\alpha)$$

where Δ is the first-difference operator, $\Delta trans\hat{p}arency_{i,t-1}$ is the predicted value of the lagged first-difference of transparency obtained from equation 7, and $\hat{\rho}$ and $\hat{\beta}$ are obtained from equation 8. We estimate all four equations in the same MCMC algorithm run from JAGS 3.3.0. Estimates from this model are reported in the three rightmost columns of Tables 5. We run two chains of 30,000 iterations each, where the first 20,000 iterations are used as a burn-in period. Gelman-Rubin diagnostics on all model parameters indicate that the model has converged.

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[24]This process bears some semblance to the fixed-effects vector decomposition method of Plümper and Troeger (2007), in that estimates of coefficients on time-varying coefficients are obtained from one unbiased model and substituted into a (biased) model to obtain estimates for time-invariant characteristics. Here, however, this process is meant to address Nickell bias rather than discrepancies between fixed and random effects estimators.

Table 5: Models of Disclosure: GWF Data, Andersion-Hsiao Estimation

		Model 1	**Model 2**	**Model 3**
Regime Predictors	**Party**	0.002	-0.002	-0.003
		[-0.031, 0.032]	[-0.037, 0.028]	[-0.034, 0.024]
	Personal	-0.037	-0.037	-0.040
		[-0.073, 4×10^{-4}]	[-0.070, -0.001]	[-0.072, -0.007]
	Fuel Exporter	-0.029	-0.027	-0.027
		[-0.065, 0.008]	[-0.061, 0.008]	[-0.059, 0.005]
Regime-Year Predictors	**Lag Transparency**	0.645	0.647	0.648
		[0.634, 0.656]	[0.636, 0.657]	[0.637, 0.657]
	GDP *per capita*	7×10^{-4}	0.001	
		[-0.013, 0.015]	[-0.012, 0.014]	
	GDP	0.004	0.003	
		[-0.007, 0.014]	[-0.008, 0.013]	
	Ec. Openness	0.004		
		[-0.008, 0.017]		
	Growth	-0.006		
		[-0.013, 2×10^{-4}]		
	Gov't Consumption	-0.008	-0.007	
		[-0.019, 0.003]	[-0.018, 0.003]	
	New Leader	0.007	0.007	0.008
		[-0.011, 0.026]	[-0.010, 0.027]	[-0.011, 0.026]
	Cubic Time Polynomial	✓	✓	✓
	# Obs	1411	1411	1411
	# Regimes	111	111	111

Results from a hierarchical varying-intercepts linear regression of HRV transparency index scores on listed covariates. Covariates that shift the intercept term are described as 'Regime Predictors', while those that directly shift predicted transparency values are listed as 'Regime-Year Predictors.' All covariates that are neither indicators terms nor time counters have been standardized by subtracting the mean and dividing by the standard deviation. 95 percent credible intervals are presented in brackets.

Table 5 provides coefficient estimates from the second- and third-stage of this system of equations. Table 6, below, presents estimates from the first stage.

Table 6: First Stage Anderson-Hsiao Estimates, GWF Controls

Variable Name	Model 1	Model 2	Model 3
Constant	-0.386	0.146	-0.507
	(22.374)	(22.835)	(22.451)
GDP per capita	-0.007	0.002	
	(0.052)	(0.05)	
GDP	0.032	0.033	
	(0.03)	(0.03)	
Ec. Openness	0.018		
	(0.019)		
Growth	0.004		
	(0.004)		
Gov't Consumption	0.001	0	
	(0.016)	(0.015)	
New Leader	0.01	0.01	0.01
	(0.015)	(0.014)	(0.014)
Time	0.419	-0.114	0.54
	(22.375)	(22.834)	(22.451)
Time^2	0.023	0.028	0.02
	(0.132)	(0.136)	(0.135)
Time^3	-0.018	-0.019	-0.016
	(0.028)	(0.029)	(0.028)
Transparency$_{t-2}$	-0.009	-0.009	-0.008
	(0.005)	(0.005)	(0.005)

Coefficient estimates from the first stage regression of the lagged first-difference of transparency on the twice lagged level of transparency and time-varying covariates. Standard errors are in parentheses.

C.1.1 Anderson-Hsiao: DD Robustness Checks

We conduct an analogous robustness check using the Gandhi definition of intra-regime ties – i.e., hierarchical or non-hierarchical. Results from this robustness test are reported in Table 7.

First stage results from the Anderson-Hsaio specification are presented in Table 8.

Table 7: Anderson-Hsiao Correction: DD Data

		Model 1	**Model 2**	**Model 3**
Regime Predictors	Single Party	-0.021		
		[-0.072, 0.041]		
	Multi-Party	0.009		
		[-0.038, 0.058]		
	Legislature	0.017		
		[-0.02, 0.059]		
	Hierarchical	-0.023	-0.029	-0.026
		[-0.051, 0.004]	[-0.053, -0.007]	[-0.052, -0.005]
	Communist	0.027		
		[-0.029, 0.079]		
	Fuel Exporter	-0.02	-0.025	-0.022
		[-0.059, 0.018]	[-0.06, 0.01]	[-0.057, 0.01]
Regime-Year Predictors	Lag Transparency	0.644	0.648	0.65
		[0.632, 0.656]	[0.638, 0.657]	[0.64, 0.66]
	GDP per capita	0.006	0.004	
		[-0.007, 0.022]	[-0.007, 0.017]	
	GDP	0.002	0.003	
		[-0.01, 0.013]	[-0.008, 0.013]	
	Ec. Openness	0.001		
		[-0.011, 0.014]		
	Growth	-0.008		
		[-0.015, -0.002]		
	Gov't Consumption	-0.012	-0.012	
		[-0.024, 0]	[-0.023, -0.002]	
	New Leader	0.001	0.002	0.002
		[-0.016, 0.02]	[-0.015, 0.02]	[-0.017, 0.02]
	Cubic Time Polynomial	✓	✓	✓
	# Obs	1486	1486	1486
	# Regimes	121	121	121

Results from a hierarchical varying-intercepts linear regression of HRV transparency index scores on listed covariates. Covariates that shift the intercept t
Predictors', while those that directly shift predicted transparency values are listed as 'Regime-Year Predictors.' All covariates that are neither indicators
been standardized by subtracting the mean and dividing by the standard deviation. 95 percent credible intervals are presented in brackets.

Table 8: First Stage Anderson-Hsiao Estimates, DD Controls

Variable Name	Model 1	Model 2	Model 3
Constant	0.225	0.291	0.123
	(22.345)	(22.867)	(22.245)
GDP per capita	-0.013	-0.005	
	(0.051)	(0.05)	
GDP	0.03	0.031	
	(0.03)	(0.03)	
Ec. Openness	0.011		
	(0.019)		
Growth	0.006		
	(0.004)		
Gov't Consumption	0.006	0.003	
	(0.016)	(0.015)	
New Leader	0.007	0.007	0.002
	(0.013)	(0.013)	(0.014)
Time	-0.197	-0.264	-0.094
	(22.344)	(22.867)	(22.246)
Time^2	0.055	0.055	0.047
	(0.133)	(0.129)	(0.132)
Time^3	-0.023	-0.023	-0.02
	(0.028)	(0.027)	(0.028)
Transparency$_{t-2}$	-0.009	-0.009	-0.008
	(0.005)	(0.005)	(0.005)

Coefficients from the regression of the lagged first difference of transparency on its twice lagged level and the first-differences of time-varying covariates. Standard errors are presented in parentheses.